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Edited by HENRY C. PEARSON—Offices, No. 35 West 21st Street, NEW YORK.

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SEPTEMBER 1, 1906.

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THE RATE OF PROFIT FROM RUBBER.

FROM its outset THE INDIA RUBBER WORLD has taken a lively interest in the subject of rubber planting, with a view to determining (1) whether the more important rubber bearing species were susceptible of cultivation, and (2) whether trees developed by planting would yield satisfactorily. It was assumed that, in the event of these questions being answered in the affirmative, the profit of rubber culture would be a matter of course. After sixteen years of devotion to the subject, we can point to rubber culture as a firmly established fact; experiments with each of the leading species have shown them all capable of being cultivated, under proper conditions, and of yielding under culture a good return of rubber of a quality equal to, if not better than, the produce of forest trees.

But how about the profits? It is idle to figure out how much can be made from growing rubber. What is the profit from growing wheat, or mining coal, or keeping a hotel? How much can one man make in a lifetime by selling groceries? In every business, however legitimate and profitable, there are failures as well as successes; much depends on the man, and may depend upon circumstances beyond his control. So with rubber. Fortunes have been made in trading in "wild" rubber, and fortunes lost in the same business. The same is true of the rubber manufacture. And no matter how successful some rubber planters may be, some others will fail. Hence no investor of a given amount of rubber can count certainly on a given return.

What we do know is that money is being made in planting rubber, on estates which give every evidence of continued productiveness, while the demand promises to be permanent and to become constantly larger. As the world goes, the production of any real necessity—such as rubber is—is bound to be profitable. The chief mistake we have noticed in connection with this new culture is that made by outside investors, who have been led by the results from some particularly well circumstanced estates to pay extravagant prices for rubber company shares, and who may be disappointed at the rate of dividends. We hear that complaint has been made by shareholders in one company because the first year's dividend is only 20 per cent. The return is very liberal for those who hold their shares at par; those who bought later on an inflated basis have made their own price. It is the same as with bank stocks and railway securities. Thus whatever the rate of profit, the investing public is not likely to get a higher rate from rubber than from ordinary investments, because the price of shares may be expected always to rise to a point which brings the net return to the average dividend level.

The organization of many more rubber culture companies seems inevitable; indeed, this interest is only in its infancy. It is not too early, however, to be warned against overcapitalization.

THE GERMAN RUBBER INDUSTRY.

OWING to the fact that the shares of so many of the German rubber manufacturing companies are listed on the stock exchanges, the number of such companies making public reports of their condition is larger than in any other country. A summary of the most recent reports made by the leading German rubber companies indicates a marked improvement of conditions as compared with those existing only two or three years ago, when many industries in that country were more or less depressed. We have before us figures relating to 15 rubber companies, the latest dividends of which compare with the dividend of the preceding year as follows: 9 companies show an increase, 4 companies no change of rate, and 2 small companies a decreased dividend. Taking the 15 companies together, the average increased dividend rate is nearly 30 per cent. The average rate is not yet as high as in some former years, but a marked advance has been made since the period of depression. Nor are the bourse quotation for shares as high as in certain other years, though when considered in relation to the dividend rate, share prices are higher than two years ago. This would indicate, first, popular confidence in the soundness of the rubber industry, and secondly, a higher price level for shares generally.

A second indication of the improved condition of the German rubber industry is the increasing rate of imports of raw rubber. Germany is becoming more and more important as a distributing market for rubber, so that the imports alone do not afford a measure of consumption within the country, but indications are not lacking that the amount of raw material consumed is steadily increasing. The importance of Germany as a rubber market is illustrated by the growing direct importation of rubber from primary sources, as from Brazil, which doubtless is proving advantageous to the manufacturers here.

Finally is to be mentioned the growing export trade in German manufactures of rubber. There is to-day no important consuming market for rubber goods in which German manufacturers are not capably represented. Practically every line of rubber goods is included in these exports, while in some lines the Germans hold first place in the matter of international trade.

These lines are written, of course, without prejudice to the rubber industry in any country; it is necessary in any study of the world's rubber trade to take account of the growth which has taken place in Germany and within a few years placed her among the three leading rubber manufacturing nations, whether second or third not being easy as yet to determine. The causes which have contributed to this development deserve the consideration of the trade in every competing country.

THE RUBBER BUSINESS WILL BE REVOLUTIONIZED AGAIN when the facts become more generally known regarding a vine reported to have been discovered in a remote part of

Mexico. The story goes that some Chinese laborers wove sections of the vine into rude hammocks, which were none the less comfortable on account of the tendency of the material to stretch. The vine, indeed, was elastic, containing a high percentage of rubber, "so strong that, on breaking the wood, the rubber still holds." In other words, it is not necessary to extract the elastic material to make it of service to man; the vine in a state of nature is a good rubber cord, which, we feel sure, the ingenuity of our inventors will turn to many practical uses. It should be further noted that "in the new vine there appears to be a total absence of essential oil and rosin," though we are surprised at an admission that the vine lacks any element contained in any other plant. As for a practical application, a section of the Mexican vine, bound around a vehicle wheel, might make a good elastic tire; it would at least be cheap, and puncture proof.

NUT PLANTING IN THE UNITED STATES is an interest represented by two periodicals known to us, and a number of books have been printed for that interest. There are any number of advertisers of seeds and plants and nut planters' requirements. Besides, there are associations of nut planters in several states, and a national association, all of which apparently maintain an active existence in the promotion of the scientific culture of pecans, "English" walnuts, and the like. Apart from these indications, a reading of the journals referred to shows that nut planting, properly pursued, is distinctly profitable. Measuring the returns from nuts, besides which is to be considered the value of the timber and the advantages from the reforestation of certain sections of the country. One point of interest in this connection is that nowhere do planted nut trees begin to yield nearly so soon as do rubber trees, which would suggest that the length of time required for a rubber plantation to become productive is not necessarily a controlling objection to planting rubber.

THE FRIENDS OF GOOD PUBLIC SERVICE have reason to feel encouraged by the efforts making at Washington, under recent acts of Congress, for improving the consular system and its working. We have no sympathy with the professional critics of the consular service. Too much has been expected of the consuls, especially in the way of opening new channels for trade-work which belongs to manufacturers and merchants. At the same time, the consuls are in a position to be helpful in trade expansion of the country they represent, and many members of the service have acquitted themselves creditably in this regard. As for the pending reforms, the first step is reorganization of the system—if something which has grown up much by accident can be called a system—with a view to better defining the duties of the consuls and their relation to other branches of the public service; in other words, to decide just what the consuls should do. This matter has been taken out of "practical politics" by referring it to a board composed of members of the consular force of long experience and proved capacity. The next step will be a system of inspection, by means of which Washington can better keep in touch with the consuls, so that a man in the service at a remote post is less likely to be forgotten, and will have less opportunity to deteriorate and become useless, if not worse than useless. The good faith of the government in respect of bettering the con-

sular service is not to be doubted; and the government constantly becomes more independent, in such matters, of the claims of party leaders that consular posts be reserved as rewards for political activity. Meanwhile it should be remembered that the consuls of every country are blamed at home for not doing more for the people they represent, and the United States service is often held up as a model by European critics of their own consuls.

THE GREAT SUCCESS OF "HEVEA" PLANTING in the Far East has led to some doubt in the minds of planters elsewhere, of other species, whether they have not made a mistake in not having planted *Hevea*. In may afford some encouragement in such quarters to know that Mr. W. E. Gildea, a pronounced advocate of planting *Castilloa* in Ceylon, has successfully turned the estates in which he is interested into a joint stock enterprise, in which he and his partners hold half the shares. Investors seem as ready to buy one good rubber proposition as another, and that Mr. Gildea still believes in *Castilloa* is indicated by his retaining an interest in the plantation formed by him.

THE CONSUMPTION OF RUBBER IN EUROPE is increasing more rapidly than on this side of the Atlantic, for which there are two reasons. The first is that the use of rubber goods in certain European countries, formerly much less general than in the United States, is constantly increasing. The second is that manufacturers abroad contribute to a greater extent than the Americans to supplying the growing demand for rubber goods in those countries where no such goods are made.

GUAYULE PRODUCTION OF MEXICO.

THE exports of crude rubber from Mexico are showing a large increase of late, which is due apparently in large measure to the growth of production of rubber from Guayule. The figures for the past three fiscal years (ending June 30) are as follows, expressing weights in kilograms:

	Kilograms	Value (Silver).
In 1903-04.....	308,072.3	\$ 520,766.60
In 1904-05.....	497,803.8	719,104.29
In 1905-06.....	1,450,248.9	2,390,425.29

Of the exports during the last fiscal year, the figures for the first six months total 360,717.4 kilos, and from January 1, last, 1,089,531.5 tons, showing the marked increase to have dated practically from the beginning of 1906. These figures are obtained by THE INDIA RUBBER WORLD from the Mexican *Ministro de hacienda*, who observes that they doubtless include the exportations of Guayule rubber, no separate record being kept of rubber of this class. Altogether, the figures given above would indicate the shipment, during the past year, of more than 1000 tons more than the normal exports from Mexico, which may reasonably be set down as a measure of the production of Guayule.

The custom houses through which rubber was exported during the past year, and the amounts despatched through them, are as follows:

Kilos.	Kilos
Acapulco.....	687
Ciudad Porfirio Diaz.....	485,140
Chetumal.....	80
Isla del Carmel.....	888
Laredo.....	47
Manzanillo.....	7,413
Matatlan.....	1,150
San Blas.....	3,351
Soconusco.....	32,144
Tampico.....	703,923
Tuxpam.....	11,658
Vera Cruz.....	203,768
Total.....	1,450,249

It appears worth noting that the declared value of rubber for export has not been greatly lowered in consequence of the lately increased output. In other words, the average value per pound in 1903-04 was \$1.69 (silver) and in 1905-06 it was \$1.54.

* * *

MEXICAN newspapers give prominence to the efforts making to form a new company on a large scale to exploit Guayule. W. H. Ellis, of New York, is named as the chief promoter, and Francisco Yarza, general manager of the Bank of London and Mexico, is interested. The projected company plans to acquire control of large areas in northern Mexico covered with the Guayule shrub and an interest has been purchased in the factory of the National Rubber Co., at Gomez Palacio, Mexico. Also the patent issued to Pablo Bergner, of Mexico City, for working Guayule rubber has been acquired.

At the same time reports are current in Texas that New York and Boston capitalists have gained control of all the Guayule areas in the western part of that state, which are said to be extensive.

A NEW SULPHUR MONOPOLY.

IT is reported that the output of the Sicilian sulphur wells brought to the United States is to be handled exclusively hereafter by the Union Sulphur Co., of New York, a concern which already dominates the brimstone trade in this country. As a result, trade authorities assert that there will be a practical monopoly held by the Union Sulphur Co. Such competition as will hereafter exist will originate with the small producers of the far Western states and unimportant Japanese shipments to Pacific coast points.

As a result of the deal it is thought that prices will be advanced. Heretofore when manufacturers wanted sulphur there were two sources of supply, either the American sulphur or the Sicilian product. The new arrangement, says the *Pharmaceutical Era*, is the result of the establishment in Sicily of a monopoly through a law recently adopted by the Italian government and in effect since August 1. The aim of the Italian law is to regulate and control the production and price of sulphur in Italy.

According to trade advices, the managers of the Italian monopoly made an arrangement with the Société Generale des Soufres, of Paris, to manage the export trade to America. This company in turn made an arrangement with the United Sulphur Co. to distribute and control the American market for the imported Sicilian sulphur.

Credit for the completion of the trade arrangement was given to Herman Frasch, president of the Union Sulphur Co. The Union company own the greatest sulphur wells in the world, near Lake Charles, Louisiana, and of the 250,000 tons of sulphur consumed in the United States this company produces and markets more than two-thirds. Mr. Frasch, who was a young chemist in the employ of the Standard Oil Co., discovered the wonderful sulphur deposits near Lake Charles several years ago, and it is due to his efforts that the United States has become a factor in the sulphur trade of the world. He is now a leading figure in the Société Generale des Soufres, and through his connection with that company was able to obtain the marketing of the Sicilian output for the United States for his own company.

RUBBER PROFITS IN THE FAR EAST.

FROM THE SINGAPORE "STRAITS TIMES."

THERE have been genuine disappointments in certain instances; and there have been definite reasons for them. The disappointments, speaking broadly, have been associated with the Malay States, partly explained by reason of the absence of experience and close supervision, and partly by the inflated notions which some people always form. Poor results have not been experienced in Ceylon because people in the island know, at first or second hand, what is happening month by month and it is some other place, alleged to be wonderfully favored by nature and ahead of the procession by the lucky speculation of those who were driven to look for something more remunerative than coffee, which is the El Dorado of the Ceylon imagination, and which should already have accomplished in rubber twice as much as the uttermost possible.

The fact is that, speaking collectively, both Malaya and Ceylon have done exceedingly well, and those planters having mature rubber or acreage approaching the bearing stage have reaped and will reap abundantly. The main question is—what are the prospects of those beginning to plant now? There is nothing whatever to cause a doubt that, with well selected land, their outlook is also extremely promising. Not so good, be it remembered, as with estates which will secure for their produce the market figures of the present and next four or five years; but still amply to show the owner of 200 acres a modest competency in ten years.

Cautious people do not publish broadcast estimates for future value based on present figures, either of market value or daily labor, without making more than mental reservations. The allowances are large and well emphasized. To illustrate the point, there are to-day reliable valuers estimating rubber in bearing, and evenly planted, as worth upwards of £200 per acre; but who would venture to value at the same figure for the year 1912 an estate being planted this autumn? Half the price would be a sufficiently roseate anticipation.

However fast the demand is increasing, it would be the height of folly to fail to understand that, with huge areas being put under cultivation all round the world's tropical belt, maintenance of anything like the present huge profit per pound cannot be reckoned upon. The investor who has hitherto been carried along in the swift current of speculation may have made more than he dreamed two years ago was possible in so brief a time, short of drawing a Derby winner; but if he is keeping what he has made in rubber, and would see it increase without taking absurd risks or preparing himself for serious disappointment, he should remember two things:—

First, immediate returns are apt to be exaggerated as the prospects of different companies are bandied about between men in the street; and (2) reliable valuations of estates in bearing or approaching bearing are now at their highest—i.e., developed estates are of greater market value to-day than estates which are maturing by 1912 will be in that year. Already those who prophesied a higher average price in 1906 than in 1905, whether for fine Pará or plantation rubber, are finding themselves in the wrong.

THERE are indications that Havre is destined to become a very much more important market for crude rubber.

FARREL ACQUIRES THE KELLY PLANS.

THE Farrel Foundry and Machine Co. announce that they have purchased the drawings, patterns, and good will of the National Water Tube Boiler Co. (New Brunswick, New Jersey) for the rubber machinery which they formerly manufactured, as the National company are going out of this line of business. This business was founded by William E. Kelly, who was among the first to make a specialty of machinery for rubber work. He made an exhibit at the Philadelphia Centennial Exhibition, in 1876, which probably was the first display of the kind ever made. No doubt all of the older rubber factories in the country have at some time used machinery made at the Kelly works, though in the earlier days much equipment of such factories were made at local foundries on specifications furnished by the rubber superintendents. In an early number of THE INDIA RUBBER WORLD mention was made of Mr. Kelly having filled an important order for machinery for the rubber shoe manufacture for a large Russian factory, in competition with the leading European makers. The business was long conducted as the National Iron Works, and on the retirement of Mr. Kelly, on account of ill health, passed under the control of the National Water Tube Co. It should be mentioned that the Farrel Foundry and Machine Co. established in 1848 for making chilled rolls, have also a long record in the manufacture of rubber machinery. Mr. Franklin Farrel, son of the founder and now president of the company, has been in charge of the business since 1857.

OBITUARY.

CYRENIAS N. SQUIRES, of Naugatuck, Connecticut, died at his summer home in Middletown on August 20. He was born at Redding, Conn., January 25, 1832, and in 1850 secured employment in the rubber factory of John Greacen, at Sandy Hook. Two years later he went to the Union India Rubber Co.'s factory at Naugatuck, later operated by the Goodyear's India Rubber Glove Manufacturing Co., where he remained until early in 1904, when he retired. Two years during the civil war he was in the Union army. Mr. Squires assisted Charles Goodyear in a number of experiments and made several inventions in connection with rubber work that proved of value. Mr. Squires had four sons, whom he introduced into the rubber industry, including Eugene D. Squires, who succeeded his father as foreman of the clothing department of the Glove company, and Arthur C. Squires, now of Akron, Ohio. He had also a daughter, who is the wife of Noyes E. Alling, president of the Alling Rubber Co. At the time of leaving the Glove company Mr. Squires stated that he had never experienced a day's illness.

It is stated that in the annual parade of the New York police, recently, participated in by about 7000 members of the force, nearly all of them wore rubber collars. A newspaper mentions that over \$17,000 worth of such collars were disposed of to the men just before the parade. The use of rubber collars was not obligatory, but the suggestion came from an official that they be worn, and nearly every patrolman took them. It is mentioned that the sale was effected by a woman. An increasing sale of rubber collars and cuffs is reported in many other directions.

RESULTS OBTAINED FROM BELTS.

THE popularity of automobiles as pleasure and business vehicles has made itself felt in many branches of commerce that would appear in no way related to the motor car industry. This is true, for example, of makers and users of conveyor belts. So much rubber is used for motor vehicle tires, and so rapidly is the consumption increasing, that crude rubber has attained a much higher priced level than would, a few years ago, have seemed possible. This has had, of course, an effect upon the conveyor belt trade, and a short time ago the large users of these devices were rendered uneasy by an intimation from manufacturing sources that they might expect a sharp jump in prices in the near future.

It is conceded that rubber makes the best conveyor belt for many purposes, though cotton duck answers very well for some work. The term "rubber belt," by the way, does not always mean exactly what it says. Rubber alone has not the necessary tensile strength and is too elastic to admit of its being used for belting, so it is combined with strong canvas duck of the thickness to make a belt of the required size. There are many modifications of the rubber belt, even for conveyor purposes.

Opinions as to which is the best belt for conveying purposes are almost as many as there are users and makers. A belt that would do good service in one place might prove unsuited to another, even where the material to be moved is the same. There is really no way of determining in advance what the life of any conveyor belt will be; it must be tried out on the work for which it was intended. Each belt is, and must be, subject to conditions peculiar to itself. No two are identical no more than any two men are absolutely alike. Two belts of the same quality and make may be installed the same day in a stone crushing plant, for example. Two men will have charge of the operation of the belts. One of the belts may be worn out in a few days, while the other may last a year. This difference may be due to any one of a dozen causes, or there may be a number of contributory elements; but the chances are that the chief fault is most likely in the operator in charge of the belt that gave out first.

* * *

IN discussing this point with an INDIA RUBBER WORLD representative, a large user of conveyor belts said: "Until we get exact uniformity of conditions, and until all men are exactly alike, there can be no such a thing as uniformity in the life of conveyor belts. We use many belts from 24 to 30 inches wide for conveying raw ores. On general principles we have found the rubber belt the best for our purposes, though we have had excellent results from others. After the ore is crushed we use a smaller belt, and find that for this purpose it is not necessary to use the highest grade rubber belt; in fact we are getting satisfactory service from canvas.

"As a rule, we have been unable to buy belting covered by either a carriage or time guarantee, though we have done so in some instances. Competition is brisk and manufacturers are willing to make greater concessions than formerly. Just what we shall do if prices go much higher we do not know. It will be time enough to think of that when we have to.

In the first place no one knows to-day which is the best belt. Each manufacturer claims that honor for his product, but his opinion is likely to be biased. We hope to be able to settle this question, to our own satisfaction, at least. We have had a belt made up of sections of the leading brands of conveyor belts, and are running it on our most trying work. Our experts are watching this experiment closely and noting the condition of the various sections every day. In the end we shall be able to tell what belt is best suited to our work, for it will enable us to make a comparison of belts operated under exactly the same conditions."

* * *

ONE of the severest tests that can be put upon a conveyor belt is that of carrying crushed stone. A representative of one of the biggest concerns in the business said his company used many belts of several makes and varying in width from 8 to 30 inches.

"We have had a hint that prices of rubber belts would soon go up," said he, "but we do not think the advance will be sufficient to be prohibitive. We are using a cotton duck belt that is doing fair work, but we do not believe it will take the place of rubber. The objection to this type is that it is susceptible to expansion and contraction. When a canvas belt gets damp it contracts and you have to 'set' in a piece. As it dries out it expands and becomes loose and you have to take the piece out again.

"There is no way to get at the probable life of a belt any more than there is to get at the probable life of a human being. We have got a few guarantees of conveyor belts, but they were governed entirely by conditions applying to each belt. A time guarantee depends wholly upon where the belt is to be used and the conditions governing its use. We buy a 36 inch rubber belt 194 feet long, expecting it to carry 250,000 cubic yards of crushed stone. If it does that we are satisfied; and about two-thirds of our belts do that. Under the most favorable conditions we are getting 350,000 cubic yards from a 30 inch belt 500 feet long. This belt, like most of the others we use, is run flat. We run between 5000 and 10,000 feet of belting and about 75 per cent. of it has to be renewed each year.

"While we prefer rubber conveyor belts for most of our work, there doubtless are some places where we could use a substitute advantageously if we were forced to it by high prices, though up to date I have not seen any but rubber belts that would come up to our requirements. There is a belt made of canvas filled with a compound that has the appearance of rubber, that does good work. Its makers claim the filler is not rubber, but it looks and feels like rubber. This belt is not regarded as a competitor of the rubber article; it costs less than rubber, but is more expensive than canvas."

* * *

"THERE is a marked upward tendency in the prices of crude rubber and cotton duck such as are used in making belting," a leading manufacturer said, "and that means that belting must go up. A special compound of rubber and a special weave of duck are required for this purpose. We have made no substantial advance as yet, but we may

have to do so. The demand for rubber is rapidly increasing and of course the price of rubber products must increase correspondingly.

"As to guarantees, we have sometimes given one for tonnage, though as a rule we do not regard it good business. Time guarantees are out of the question. The ordinary commercial guarantee, which implies good material and workmanship, is a different thing. Most of our conveyor belts are of the trough type, the kind chiefly used for carrying ores, coal, and stone. These have to stand the hardest possible strain and the roughest of handling, so it is obvious that we could not give a sweeping guarantee. The conditions covering the use of any one belt are never like those covering any other, so each must be reckoned with by itself."

Several important experiments are being conducted with a view to discovering an acceptable substitute for the high grade rubber conveyor belt that is now most generally used. Several belts in which reclaimed rubber was used have been tried with varying success. The chief trouble seems to be lack of uniformity. On some work the reclaimed rubber belt has proved satisfactory, especially in the narrower widths. A western mining company has secured excellent results from a long, wide belt of particularly heavy duck, with its carrying surface thickly studded with heavy copper rivets.

COAGULATION OF "CASTILLOA" RUBBER.

REPLYING to an inquiry from the Editor of the *Bulletin* of the Jamaica Department of Agriculture, Mr. S. W. Sinclair, manager of a rubber plantation at Bluefields, Nicaragua, says that it consists of a piece of board through which $\frac{1}{4}$ inch holes are bored, about 2 inches apart each way. Over this board a sheet of absorbent paper is placed. The paper must be laid on the board wet; if put on dry, it will warp and give an uneven sheet of rubber. Having the board and paper laid on wet, now proceed to tack on the rim or frame, which should be from $1\frac{1}{4}$ inches to $1\frac{1}{2}$ inches high, and your box will be ready for coagulating. As soon as the latex is brought in from the field, he adds four times its volume of water, then strains through a fine metal sieve; then the whole is placed in a cone bottom tin tank to settle, which takes about an hour. He then decants off the water until the latex becomes as thick as when it came from the tree; then he pours it into boxes and the water that is in the latex, which can't be decanted off, will pass through the absorbent paper in about 10 minutes, leaving the rubber. The latter is exposed to a heat of 110° F. for five or six hours, when the rubber can be lifted off the box. A new sheet has to be put on after being used 10 or 12 times. The time of exposure to heat varies and it is hard to give a correct formula in this respect, but one soon learns by the feel of the sheets, just when to take them from the boxes. He takes them off as soon as the fingers don't stick, when pressed against them. It may be mentioned that this method is for *Castilloa elastica*. The *Hevea* latex passes through the absorbent paper. Mr. Sinclair says that rubber coagulated on the above method becomes transparent like biscuits from Ceylon and the Straits, and runs the latter a close second in price.

THE MATALE CEYLON RUBBER CO., LIMITED.

REGISTERED in London to acquire, from February 1, 1906, the estates of Ambanganga (279 acres), Waredaminie (208 acres), and Arolsen (208 acres), in Matale North district, Ceylon. There are 187 acres of *Castilloa* and 179 acres of *Hevea* rubber, all interplanted with cocoa and 91 acres being planted with *Hevea* alone. Cocoa harvesting is to begin this year, and it is expected to tap 16,000 *Castilloa* trees (6 $\frac{1}{2}$ years old) next year. The price to be paid for the properties is £10,000 cash and £15,000 in shares. Capital, £30,000 [= \$145,995]. Secretary and offices: P. E. Hervey, 30, Mincing lane, E. C., London. One of the vendors is W. E. Gildea, one of the proprietors of Ambanganga estate, noted as an advocate of *Castilloa* planting in Ceylon.

DOS RIOS PLANTATIONS CO.

[Plantations "Dos Rios," in the State Vera Cruz, Mexico. Offices: 709 Bank of Commerce building, Kansas City, Missouri.]

THIS company, formed in January last, is a reorganization of the Dos Rios Planters' Association, one of the oldest of the planting enterprises in Mexico. The plantation "Dos Rios" is located at the junction of the Coatzacoalcos and Chalchijapa rivers, on the isthmus of Tehuantepec. The financial condition of the company is reported improved by the new arrangement. W. S. Woods is president, S. W. Mason vice president and secretary, and J. W. Rubey treasurer. Mr. Mason, who returned recently from a visit to the plantation, states that the company purpose tapping this fall 15,000 to 20,000 of their oldest rubber trees.

RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES

THE following is an official statement of values of exports of manufactures of India-Rubber and Gutta-percha for eight fiscal years, ending June 30:

YEARS.	Belted, Packing, and Hose.	Boots and Shoes.	All other Rubber	TOTAL.
1905-06.....	\$1,221,159	\$1,505,082	\$2,966,144	\$5,692,385
1904-05.....	994,100	1,214,342	2,572,375	4,780,817
1903-04.....	879,476	1,086,364	2,469,750	4,435,590
1902-03.....	819,485	1,056,491	2,299,875	4,176,351
1901-02.....	634,146	1,046,315	1,781,941	3,462,402
1900-01.....	565,726	724,015	1,727,527	3,017,268
1899-00.....	541,830	420,746	1,405,212	2,367,788
1898-99.....	(a)	260,586	1,504,499	1,765,385

[(a) Included in "All Other" prior to July 1, 1899]

The number of pairs of rubber footwear exported during the past six years has increased as follows:

1900-01.	1901-02.	1902-03.	1903-04.	1904-05.	1905-06.
1,469,100	2,594,688	2,307,401	2,310,808	2,390,539	2,693,670

THE British consul in Bolivia reports that the progress made in rubber planting in the Far East is having the effect in Bolivia of causing greater care in the production of forest rubber, and in the preservation of the trees tapped. "In former years," he writes, "it was quite a minor question if a tree became useless by over milking it."

THE Diamond Rubber Co. are proud of the record they have made this year in their tire department. Reports of the tire trade which have reached them would indicate that the company manufactured and sent out to the trade almost one-third of the tires that have been made in the country this year.

CRUDE RUBBER AND PLANTING INTERESTS.

RUBBER EXPLOITATION IN BRAZIL.

A NEW London flotation is the De Mello Brazilian Rubber Co., Limited, with £495,000 capital, of which £175,000 was offered for subscription. The vendors take the ordinary shares, £270,000, in part payment. The directorate includes some names important in trade and commerce, including a member of Callender's Cable and Construction Co. (London); two directors of Sultans du Haut Oubangui, trading on the Congo; and Sebastiao Francisco de Mello, rubber merchant of Manáos, Brazil. The company was formed to acquire the productive rubber estates and business of Senhor de Mello, partly in the Acre district and partly in the state of Amazonas, comprising about 700,000 acres, and producing 385 tons of rubber in 1905 and an average of 300 tons for five years past. Of course only a small percentage of the rubber trees on the property have been tapped, and it is planned to extend operations. The prospectus, from which these data are gleaned, says that above 1200 rubber gatherers are at work. The assets taken over, from February 1, 1906, include two steamers, launches, horses and mules, etc., on the property; and real estate in Manáos. The house of de Mello & Co. are among the larger receivers of rubber at Manáos and among the exporters of rubber to Europe.

A VALUABLE RUBBER TREE IN COLOMBIA.

THE "virgen" rubber of Colombia is discussed in *The Journal of the Jamaica Agricultural Society* (May, 1906) by Mr. Robert Thomson, with a view to pointing out the desirability of its cultivation in Jamaica and elsewhere. This is a species of the genus *Sapium*. The specific name *biglandulosum*, applied to this tree by the authorities at Kew, Mr. Thomson considers erroneous—*biglandulosum* is another species indigenous to vast expanses of tropical America and is useless as a commercial rubber producer. Mr. Thomson notes that about 22 years ago, when he was establishing a large cinchona plantation on the Colombian Andes, in the center of the virgen rubber region, this rubber tree was discovered and thousands cut down and hundreds of tons extracted, which was exported mainly to the United States. He frequently accompanied the rubber col-

lectors into the forest and encountered specimens up to more than 100 feet in height, one of which when cut down yielded upwards of 1 cwt. of dry rubber. Trees of smaller sizes yielded from 50 to 60 pounds of rubber. It should be borne in mind that tropical forests contain a bewildering profusion of species of plants struggling for existence. Thus important trees like cinchona, rubber, mahogany, and the like are sparsely distributed—sometimes only a few trees throughout hundreds of acres. If all the rubber trees that comprised the virgen rubber zone spontaneously distributed throughout about 1000 square miles (they were all cut down) had been concentrated in a specific area this would have been only 400 or 500 acres. "Hence," says Mr. Thomson, "the importance of establishing plantations; and plantations are not cut down as the wild trees are they yield perpetual returns under cultivation."

Whereas the other important rubber species grow in the hottest zones on the earth this *Sapium* is indigenous to the cool bracing temperature of lofty tropical mountains. The temperature on these mountains is like a perennial English spring, comparable to that on the mountains of Ceylon, where so many Englishmen flock. Hence, to prospective planters settling in Jamaica the climatic conditions involved are such as to claim their attention for *Sapium* as a species

for cultivation. The cinchona plantations established in Colombia, as also those in Jamaica, collapsed in view of the decline in the price of quinine, and Mr. Thomson recommended his cinchona company to make a plantation of this then newly discovered virgen rubber. He, therefore, planted 30,000 trees, several hundred to the acre, with the object of thinning them out later, and obtaining a small crop from the discarded trees. Mr. Thomson saw little of the plantation later, but understands that "a good deal of splendid rubber has been extracted." At a lower level a coffee planter formed a small rubber plantation with plants supplied by Mr. Thomson.

From a cultural point of view Mr. Thomson has never seen a tree that flourished like this rubber tree. He has been introducing some of the plants into Jamaica, through the medium of the botanical department, and reports that he has received from the department of agriculture at



CARRYING RUBBER "MILK" TO SMOKING PLACES. "ESTRADA" NEAR MANAOS, BRAZIL.

Washington an application for seeds of *Sapium* which it has decided, on his recommendation, to plant experimentally on lands in the south of Florida, which he visited and reported on for another purpose a few years ago.

A \$1,500,000 PLANTING COMPANY.

THE largest rubber company yet formed in respect of the Far East is the Highlands and Lowlands Para Rubber Co., Limited, registered in London June 6, with a capital of £310,000 [= \$1,508,615], in £1 shares. The company takes its name from the "Highlands" and "Lowlands" estates belonging to Mr. W. W. Bailey and his associates, near Klang, Selangor, Federated Malay States, described by Mr. Pearson in THE INDIA RUBBER WORLD, September 1, 1904 (page 407). These are among the best developed properties in existence and figure in the merger at £120,000. The various neighboring estates already brought under the control of the Batu Unjor Rubber Co., Limited, come in at £66,000. Recently a syndicate of Mr. Bailey's acquired from the government 10,000 acres between Klang and Kuala Lumpur, which goes in at £40,000, and the remainder of the £310,000 is to be working capital, for developing the 10,000 acre block. It is understood that the subscriptions to the capital reached five times the amount offered to the public.

MEXICAN PLANTING NOTES.

THE plantation "La Esmeralda," of The Vera Cruz Development Co., (Canton, Ohio), consisting of 3600 acres of land in the state of Vera Cruz, Mexico, with sugar mill and equipment, was sold under an order of court at Canton, on July 16, to A. J. Ault, for \$29,000. Mr. Ault writes to THE INDIA RUBBER WORLD from Costa Rica, Ohio, that the company will be reorganized soon. The company was organized in 1901 and has planted some rubber, but it is mainly a sugar enterprise.

YIELD OF A MALAY STATE PLANTATION.

AT the second annual meeting of shareholders of The Valambrosa Rubber Co., Limited (Edinburgh, July 23), the report presented showed that 39,113 pounds of rubber harvested during the business year netted £10,745, or about 5s. 6½d. [\$1.34½] per pound. This crop was obtained from the light tapping of 557 acres; 68,235 trees were tapped—28,460 during two periods in the year, and 39,775 only at one season. The same trees are expected to yield 75000 pounds this year, and 373 acres of younger trees will be tapped for the first time. The company have 1134 acres under rubber.

RUBBER PLANTING IN THE FAR EAST.

In announcing a new edition of their "Ceylon Handbook and Directory," the publishers of *The Ceylon Observer* state their returns for this year relate to no less than 60 new rubber plantations, covering nearly 14,000 acres of actual planting. Besides, nearly every rubber estate mentioned last year appears to have increased its acreage since.

In his first annual report as director of agriculture of the Federated Malay States, Mr. J. B. Carruthers estimates that 38,000 acres have been planted to rubber to date in the States while a total of 100,000 acres has been alienated for rubber planting.

In a column of good sound sense in the way of caution against extravagant estimates of profits possible from rubber culture, Mr. A. Bethune writes to *The Times of Ceylon*:

"We know that a rubber plantation can be brought into bearing for some £20 [= \$100]. If we can get a profit per annum of that amount per acre, it means 100 per cent., and that is a good enough return for most of us." At any rate he would be satisfied with very much less than £120 per acre, as estimated by some optimists.

The first tapping by the Cicely Rubber Estates Co., Limited, in Ceylon, was done during the year ended March 31 last, when 9184 pounds of rubber were obtained from 6919 *Hevea* trees. It was sold at an average of 5s. 6d. [= \$1.33½] per pound. This works out at about \$1.77 per tree, before the end of the eighth year. The oldest planting dates from 1898. The first year's dividend is 10 per cent. on the preference and 5 per cent. on the ordinary shares.

RUBBER PLANTING IN NEW GUINEA.

THE business report of the New Guinea Compagnie (Berlin) for the business year 1904-05 goes into detail regarding the amount of rubber planted to date by the company, by species and ages, as follows:

AGE.	Castilloa.	Ficus.	Hevea.	Total.
1 year.....	50,874	44,297	13,527	108,698
2 years.....	123,670	44,231	—	167,901
3 years.....	23,786	29,004	5,010	57,860
4 years.....	51,347	5,366	1,981	58,694
5 years.....	28,061	2,480	—	30,541
6 years.....	12	2,738	—	2,750
7 years.....	11	62	400	473
Total.....	277,761	125,238	20,918	426,917

This company was founded in 1885; its capital amounts to 6,000,000 marks [= \$1,428,000]; some revenue has been derived from the sale of copra and other products.



AN AMERICAN TAPPING RUBBER IN CEYLON.

[The cutting is being done by Mr. E. H. Parriah, vice president of the Gorham Rubber Co., San Francisco, California.]

AMERICAN IMPORTATION OF TIRES.

WE trust that our reputation among our readers for broadmindedness is such as to allow us to discuss so delicate and complex a question as that of imported *versus* home made tires with a steady head and without taking sides with either. Many men's greatness has been founded upon the simple policy of telling the whole story and letting their hearers draw their own conclusions. When a man states his conclusions boldly, he commits himself and lays himself open to attack, which not everybody can afford to do; while if he leaves the final decision to others, he gets the credit without the burden of deciding, and most hearers would rather have it so.

The actual number of tires imported is of no significance. The present discussion is of relative matters and of tendencies or drifts in the trade. From a business point of view, one may be indifferent whether all or none of the tires used in the United States are imported.

The question whether people will want foreign or home made tires, or any goods, for that matter, depends upon a great number of influences, the study of which is a science in itself. Fashion, which is also imitation, is generally the strongest of these forces, patriotism being a close second. Practically the whole of the British automobile industry is based upon patriotism, and the same is certainly true of the American tire trade, as yet. Without the 30 or 45 per cent. tariff on imported tires, the American tire industry could not live. For certain reasons, based largely upon fashion and inertia, a very considerable number of pneumatic automobile tires are imported, but the tax is prohibitive against solid rubber tires, in the case of which none but economic considerations are entertained.

As everybody knows, the manufacture of automobile tires began in Europe, so that the few automobiles found here in the early years all wore imported tires. Nowadays, about 90 per cent. of the automobiles owned in America are fitted with American tires. Of course the foreign tires are heavily handicapped by the duty, but we are talking about facts. Whether the time will come when only American tires will be used, can only be speculated. As was said above, it is largely a matter of fashion. Economy, which is self interest, tells us to buy where we can get the most for our money; but then comes in the question of long run and short run economy. Some people, especially the English believe in patronizing home industries; and some others, like the protectionists, believe in making folks do so, whether or no. Many men, on the other hand, find a certain pleasure in buying things from way off somewhere, and these whims and fancies have a powerful effect in trade matters. Fashions come and go, and at times people get tired of home things, because of a certain glamour which attaches to a far off origin.

Whether or not foreign tires are still better than the home made; American makes have been vastly improved within the last year, and are gaining so rapidly that many experts look for the time when American tires will compete openly with those from abroad. Even now, large numbers of imported chassis or running gears are fitted with American bodies, which are considered fully as good as the foreign.

Imported cars always wear imported tires, except in rare instances, when otherwise specified. Not only that, but the tendency of owners of imported cars is strongly toward the continued use of imported tires.

Inertia, which is habit, is stronger, in most men, than the love of experimenting. The desire to try new things is a characteristic of Americans, on the whole, but it is not a general trait of mankind. The same instinct that prompts a man to buy a foreign car also prompts him to get foreign tires. If these tires give satisfaction, which is generally true, he naturally continues their use. Foreign cars are generally much heavier than the average American make, so common sense tells him to use tires designed for this greater weight. The difference between metric and inch sizes, though less than the range of fit, is made much of by the agents, who naturally wish to sell the more expensive tire. The influence of the chauffeur, for some reason, is almost invariably in favor of the European tires. Many have suspected that the chauffeurs are influenced thus by personal interests, though this is a serious charge, and hard to prove.

Much in the same way, the buyer of an American car is very likely to buy American tires. Most car builders now give the buyer his choice between home and foreign tires at the same price; but unless otherwise specified, the cars are fitted with American tires, and the average buyer yields to the advice of the agent in this matter. American cars being far cheaper than the foreign, the American buyer of an American car naturally buys the cheaper American tire, being prompted thereto by the same motive which induced him to buy the home made car.

These are some of the reasons for the acknowledged fact that more than three-fourths of the imported tires are for use on imported cars. This has been the banner year for the importers of tires, and there has been a great increase in the sale of foreign tires for use on home made cars; but it must be kept in mind that this increase is relatively small. The whole automobile business has increased rapidly, and this same period of heavy tire importation has been marked by a more rapid limitation of their use to imported cars.

On account of the heavy duty, the best makes of imported tires are more expensive than the Americans, even though they are sold on a smaller margin of profit. The importer tries to compete openly with the home makes, and when quality is considered, the prices are about the same for each. It is barely possible that this open competition is not the best management, because it often happens that the more costly article is bought just because it is the more costly. Value and price are closely associated in the American mind, and the main difference between conveniences and luxuries is that the bidding is downward, in the one case, and upward in the other. A foreign car is a luxury, and the more expensive it is, the better does it serve as a social distinction. Were the price of imported tires doubled, the fall in sales would probably not be proportionate.

The question of tariffs makes little difference to the importer of automobile tires. Pneumatic tires, when imported separately, pay the regular duty of 30 per cent. on manufactured rubber. Imported automobiles pay 45 per cent., which

is the regular duty on manufactured steel. Consequently, when automobiles are brought in fully equipped, the tires are valued in with the rest of the car, thus paying 45 instead of 30 per cent. A complete chassis always includes the tires, the cost of these being figured in. The importer will sometimes take off the tires and ship them separately, to save 15 per cent. duty, as well as to prevent accident to the tires in the custom house; but in most cases this is not done, since the saving in duty is nearly offset by the trouble of separate shipment and remounting on this side. The duty, too, is paid by the buyer, who is generally rich, and probably knows or cares little about the difference in tariff rates.

Thus there are reasons for and against imported tires, and each buyer must judge for himself. Luck often decides whether one will cleave to his first choice or try other makes. If one's first set are thoroughly satisfactory, one is justified in sticking to that kind, though tires of the same make often differ. Hard luck and ill handling are often blamed on the tires, and in such cases a man naturally tries other makes, though most tire houses give fair guarantees against flaws. Many of the best home and foreign makes are so nearly alike, that it really doesn't matter which he chooses.

INSULATING RUBBER CABLES.

IN connection with an extensive account of the Woolwich works of Siemens Brothers & Co., Limited (London), important builders of submarine cables as well as makers of other insulated wires, *The Electrical Review* (London) gives the following description of the method of manufacture of vulcanized rubber wires and cables.

It embraces the tinning of the copper wires, which are then transferred to the bobbins of the stranding machines. After passing through these, the finished strands are wound on suitable drums for passing on to the India-rubber covering machinery.

Each covering machine is capable of dealing with 1 to 12 wires at a time, according to the size of the strand to be covered. In the case of the ordinary vulcanized rubber cables, a number of wires with a continuous strip of pure rubber above, and another below them, pass between a pair of grooved rollers, by the action of which the rubber is pressed round each wire. In order to remove the seams left between the continuous wires, the latter are caused to pass over a separating roller. The wires then enter the next section of the machine, where a layer of white separation rubber is added in a similar manner; a third layer is afterwards superposed, and this constitutes the "jacket" of vulcanized rubber. The wires are then ready for the taping shop.

From the latter the cable passes to cylindrical vulcanizers, supplied with steam from the power station boilers. Each vulcanizer is fitted with two pressure gages, one for the inner chamber and the other for the outer jacket, as well as to an instrument which continuously records the pressure and time on a paper drum. The vulcanizing history of each coil is thus available for future reference at any time.

After being vulcanized, the cores are taken to the compounding shops; they are then measured into coils of standard lengths, tested under water, and stored ready for sale.

LITERATURE OF INDIA-RUBBER.

THE PROSPECTS OF RUBBER CULTIVATION IN CEYLON. BY Henry M. Alleyne, planter. Reprinted from *The Times of Ceylon*. Colombo: 1906. [12mo. Pp. 20.]

A STUDY of the question of yield of rubber, cost of production, prices of rubber, and profits. The writer concludes, in the presence of data showing a large yield in many cases, that an estimate of 2½ pounds per tree, at 11 years, with a later increase, is not excessive. Likewise, that the production of plantation rubber could not be stopped without keeping prices at a permanent level of under 1 shilling per pound. However, he prefers to leave to his readers the drawing of conclusions, being content to present a compilation of facts.

IN CURRENT PERIODICALS.

Guis Caoutchoutifères d'Amazonie. By O. Labroy. [Report on the rubber yielding mistletoe.]=*Journal d'Agriculture Tropicale*, Paris. VI-56 (May 31, '06). Pp. 131-133.

Bons et Mauvais Cearás. [Views of MM. DeWildeman and Chevalier on failure of some trees of *Manihot Glaziovii* to yield rubber.]=*Journal d'Agriculture Tropicale*, Paris. VI-56 (May 31, '06). Pp. 134-136.

Le Caoutchouc et le Service Agromonique de l'Afrique Occidentale Française. [Repression of frauds; Caoutchouc schools; superiority of trees to vines.]=*Journal d'Agriculture Tropicale*, Paris. VI 56 (May 31, '06). Pp. 147-148.

Vergleichende Zapfersuche nach Verschiedenen Methoden an *Manihot Glaziovii* und *Kickxia elastica* in Misahöhe, Togo. By Dr. Gruner. [Comparative study of different methods of rubber tapping, with results attained.]=*Der Tropenpflanzer*, Berlin. X 6 (June '06). Pp. 382-388.

The "Virgin" Rubber of Colombia and its Cultivation in Jamaica. By Robert Thomson.=*Journal of the Jamaica Agricultural Society*, Kingston. X-5 (May, '06) Pp. 197-199.

Experiments with Rubber Yielding Plants in Dominica. By Joseph Jones, curator botanic station. [*Castilloa elastica* and *Funtumia elastica*.]=*West Indian Bulletin*, Barbados. VII-1 (1906). Pp. 16-20.

Rubber Experiments in St. Lucia. By J. C. Moore, agricultural superintendent. [*Castilloa elastica*.]=*West Indian Bulletin*, Barbados. VII-1 (1906). Pp. 28-29.

Le Rendement des *Kickxia* au Cameroun. By E. DeWildeman. *Bulletin de la Société Belge d'Etudes Coloniales*, Brussels. XIII 6 (June, '06). Pp. 381-386.

Die Kautschuk produktion Brasiliens und ihre Mutmassliche Zukunft. By Carl Bolle.=*Der Tropenpflanzer*, Berlin. X-7 (July, '06). Pp. 435-445.

Nochmals die *Kickxia*erträge in Kamerun.=*Der Tropenpflanzer*, Berlin. X-7 (July, '06). Pp. 464-468.

Comments on Present Underground Cable Practice. By Wallace S. Clark. [With reference to the specifications of the Rubber Covered Wire Engineers' Association.]=*Proceedings of the American Institute of Electrical Engineers*, New York. XXV-4 (April, '06). Pp. 203-211.

Une Liane à Caoutchouc à grand Rendement [Review of a report by Aug. Chevalier on Landolphia Dawee.]=*Journal d'Agriculture Tropicale*, Paris. VI-58 (April, '06). Pp. 112-114.

Exportation et Emballage des graines d'*Hevea*. By Ulysses Bernard.=*Journal d'Agriculture Tropicale*, Paris. VI-58 (April, '06). Pp. 99-101.

THERE is mentioned as an important use of waterproofing compounds the protection of telegraph and telephone poles and fence posts. The waterproofing of concrete floors also calls for considerable material.

THE INDIA-RUBBER TRADE IN GREAT BRITAIN.

By Our Regular Correspondent.

THE report in which Mr. P. J. Burgess sums up what he has gleaned in England as to the rubber manufacture will of course prove more interesting to the planter for whom it is intended than to the rubber manufacturer. There is little in it which calls for comment or criticism and perhaps the most noteworthy fact about it is that he was able to get so much information at first hand from British manufacturers. In referring to vulcanization, Mr. Burgess consistently refers to 300° F. as being the temperature. I should have thought, however, that as far as the great bulk of goods is concerned 275° to 285° would be a more correct figure. Then with regard to the proofing branch it is said that benzole is the solvent generally used. I don't think this is correct, because though benzole is certainly used to some extent—and might in my opinion at present prices be more largely used—ordinary solvent naphtha is much more generally used. The main objection to benzole is not in its solvent action, but in its greater degree of volatility, necessitating the dough boxes being kept tightly closed after mixing to prevent the material suffering loss from evaporation.

DITMAR has recently contributed to the *Gummi-Zeitung* some observations on the use of light carbonate in rubber.

Their purport is to show that in a mixing of

THE USE OF
MAGNESIA.

Pará rubber with 10 per cent. of sulphur the use of magnesia up to 25 per cent. enhances

both the strength and elasticity. This bears out the results which have been obtained in practice in recent years, the use of magnesia having largely increased. Twenty years ago a few hundredweights were used for special purposes, while to-day it is used by the ton by mechanical rubber manufacturers, the bulk of it in solid car tires. The manufacture is in the hands of very few firms, as it requires an expensive plant and considerable skill to produce the light carbonate which alone is suited for rubber work. The most common impurity, which is not exactly an impurity, is hygroscopic water; this should not exceed 2 per cent., though it is often found to be 4 or 5 per cent. This water must not be confounded with the water of hydration, which is legitimately and necessarily present as the very light product is essentially a hydrated carbonate of magnesia.

OUR London contemporary in a recent issue gives an interesting account of the large reclaiming works at Copenhagen known as the Dansk Afvulkaniserings-Aktieselskab. Mr. Theilgaard's name has long been known in connection with rubber reclaiming

RECLAIMED
RUBBER.

and the works under notice do credit to his capacity as a technologist and an organizer. Copenhagen continues to increase both in size and in importance as a shipping center. Outside agriculture, however, the industries of Denmark are insignificant, though as regards rubber reclaiming this adjective can no longer be used. The use of neutral sulphite solutions for the removal of the free sulphur is a new departure, I take it, and certainly as regards effect upon the rubber one can see the advantage over caustic alkali, though I should not have thought the sulphites so powerful in their action. Presumably the sulphites of soda or lime are used.

We are told that the solutions are so neutral that they could be safely drunk if any one so desired. This bit of information might be utilized by such of the food preservers as use sulphite as antiseptics. It is suggested that the Danish product in its absolute neutrality scores over rubber reclaimed by the acid or alkali processes as there is always a danger that these latter may turn out a product containing traces of alkali or acid. As far as my experience goes I don't think there is much in this. I have never found free alkali in the product of the alkali process, and probably if traces were present they would be neutralized by atmospheric oxidation of the sulphur.

THIS year's meeting was held in Manchester in July but there was practically nothing of interest to the rubber trade

in connection with the proceedings. A few

SOCIETY OF
CHEMICAL
INDUSTRY.

members of the New York section were present, and Professor Lang, of Toronto University, but no one connected with the American rubber industry.

Speaking at the luncheon given by the members of the Manchester section, Alderman Frankenburg, mayor of Salford, said that as an old member of the Society it would have given him much pleasure to have held a garden party for the members at Peel Park if the local committee responsible for the arrangements had approached him on the subject.

FOR the last week or two there has been a dearth of rubber plantation companies, that is as far as invitations to the public to subscribe to new ventures is concerned.

RUBBER
COMPANY
FINANCE.

Not that the company promoters are displaying any lassitude. An acquaintance of mine who is in touch with the London financial group which has made a specialty of rubber flotations tells me that he is being daily bombarded with propositions concerning new companies. Nearly everybody who has got an acre of land in Ceylon or the Straits has given a concession on it to some one who is anxious to form a company or else he is engaged in disposing of it himself on similar lines. About a good many of these concessions which are being hawked about London there is the disquieting feature that the necessary legal documents are not forthcoming and this has naturally caused a feeling of suspicion in the minds of many who have been approached. In a recent speech Sir Julius Wernher, Bart., a South African gold mining magnate, said that the mining industry was a reputable business and they were not responsible for Stock Exchange values. Admitting the truth of this without question much the same may be said of plantation rubber. It is a genuine industry with what promises to be a most prosperous future and care should be taken to discriminate between the industry itself and the methods of some of those who would foster it to their own immediate advantage.

A SINGLE bicycle factory at Birmingham—the New Hudson Cycle Co., Limited—is mentioned as employing 1100 hands, and producing an average of 1600 bicycles per week. That was during the busy season, however, but it is expected that the output for the year will reach 40,000, and the expenditure for wages £60,000 [= \$291,990].

A RUBBER SWINDLE IN WASHINGTON.

IT is said that the national capital affords an excellent field for the operation of a certain class of swindlers who, with no other resource than their "nerve," live by tempting people to invest in "concessions" and the like which promise fabulous profits, but which really exist only on paper. Washington is full of stories of the success of such "promoters."

A typical case, says the New York *Sun*, was that of a chap who did a big thing of it on the strength of a magnificent rubber plantation in Chiapas, Mexico, that he didn't own. He came to Washington about a year ago. He installed himself in a high grade boarding house and proceeded to get acquainted with the folks in the neighborhood. This cheerful worker knew everybody for blocks around the boarding house within two months after he hit the town. He didn't say a word about rubber to any of them for a long time.

Then he took two or three of the men folk into his confidence as to that proposition. He didn't ask them to buy anything. He simply told them what a fine thing he had himself, and he always had an ample bundle of yellow money somewhere in his clothes, and a trick of flashing it in a wholly unostentatious way.

He rigged matters so that they had to ask him the nature of his fine snap, and then he told them. Rubber plantation in Chiapas, ever so many tens of thousands of acres, all trees in bearing. He was acquiring some more tens of thousands of acres, however, right alongside of those already in bearing, and had organized a company to take over those new acres and finance the working of the new section. He discoursed expansively on how much money per acre rubber trees produce.

He showed the first two or three a book of photographs of the Chiapas plantation, showing his own splendid *hacienda* right in the middle of it, surrounded by palms and pictures of natives tapping the trees and collecting the rubber, and so on. He got them rubber mad. They pleaded to be allowed to get into the new company with a little savings they had put away. He didn't seem to be eager to let them in, and so they wound up by demanding that he let them in. At length he let these early ones have a few thousand shares in the new plantation at \$1 a share.

They passed the word around among their friends and neighbors, and these, too, got interested in rubber. They hunted up the ingratiating rubber man, and he permitted them to accrue some of the stock at \$1.50 a share. He confined his operations exclusively to the neighborhood of his boarding house—a region embracing a radius of about five squares in the different directions.

Then somebody came out with a word of doubt as to whether that Chiapas rubber plantation was entirely on the level. The doubtful word reached the ears of the rubber man. He flared up instantly, and then he did an audacious thing. He told the people who had purchased stock of him that he wanted them to select the most reliable man in the neighborhood to accompany him to Mexico to have a look at that Chiapas plantation. They picked out a dentist of the best repute, and together the rubber man and the dentist lied down to Chiapas, Mexico.

The rubber man showed him a sure-enough rubber planta-

tion in Chiapas, and even took him to the *hacienda* on the plantation that he pretended was his own and showed him the furniture. He happened to know that only the manager of the plantation was living in the *hacienda* at the time, and as the manager didn't know the game of the rubber man from Washington he didn't let any word fall to give the snap away or indicate that the cheerful worker from Washington didn't own the whole business.

It was a bold move, but it went through on greased skids. The rubber man and the dentist returned to Washington, and the dentist went through the neighborhood telling everybody what he had seen, what a superb thing the Chiapas plantation was, what a fine time he'd had at the *hacienda*, and so on.

Which made it mighty fine for the rubber man. They stormed his doors to buy stock at \$3 a share on the dentist man's report, and he swam on the top crest of a veritable tide of gold for four months. Then he just went away, and nobody has seen or heard of him since. The bubble didn't burst till after he left. The folks who bought his pretty, gilt embellished stock certificates know now that the plantation the dentist man was shown around in Chiapas belongs to a man who has never been in the United States. The beauty of this grafter's dodge was that everything he took in was pure velvet, except for the cost of having the pretty stock certificates printed. He didn't spend a nickel for advertising.

A NEW RUBBER IN VENEZUELA.

ACCORDING to a report of the British Consul at Ciudad Bolivar, a new and previously unknown kind of rubber tree has been discovered in the extensive forests of the Caura district, in Venezuela, situated from 150 to 200 miles to the west and southwest of that port. Sample lots of the rubber produced from this tree have been sent to London, New York and Hamburg, and have realized from 3s. to 3s. 6d. per pound. This price is remunerative, as good facilities for transport by water exist. Unfortunately as yet no efficient system of tapping the trees has been discovered, as by the method of tapping applied to the India-rubber trees on the Rio Negro district the milk does not exude freely. The consequence is that the collectors fell the trees to be able to tap them all along the trunk, following in this respect the system they employ for collecting Balata. This of course will bring about the eventual exhaustion of the forests, which in the case of the Balata tree is already beginning to be felt.

RUBBER RATS IN CEYLON.

RATS are now numbered among enemies of the rubber tree. Complaints are made in Ceylon of the depredations by rats on young rubber trees, the attacks being made apparently on the roots of the tree. It has long been known there that porcupines are also serious depredators in the low country, and damage has been done by monkeys on some low country estates. This is rather a formidable array of enemies for the young rubber tree to face, but the Ceylon Tea Plantations Co. are adopting a cheap and efficacious method of meeting such attacks by the use of coarse wire netting round the stems of the young trees, which not only saves them from the living pests above referred to, but keeps the trees, when planted among tea, from being damaged by weeders and pluckers.

LEAD JACKETED UNDERGROUND CABLES OPPOSED.

IN a paper on Present Underground Cable Practice,* Mr. Wallace S. Clark mentions that practically all cables of the class under consideration have continuous metallic sheaths, and asks: Is this the best engineering?

Low tension cables are run in conduits with some portion of the circuit grounded. The continuous sheath on these cables is an invitation to stray currents and consequent electrolysis. In railway practice, grounding the sheath at each manhole was announced as a cure for electrolysis, but instead of a cure it has been found in some cases to be a cause of trouble. The amount of current carried by the sheath is greatly increased, producing a drop in electromotive force between ground strips sufficient to cause a flow of current to earth at some intermediate point in the duct and in sufficient volume to give trouble. In the case of a burn-out, the continuity of the sheath aggravates the trouble. The volume of current carried by these low tension conductors is so large that in many cases circuit-breakers or fuses will not operate with the current due to the short circuit.

Omitting the sheath will cure all these ills. To do this would bar paper, lead-jacketed cables absolutely, and would increase the depreciation account if some type of cable insulation needing lead only, as wood needs paint, were used. Abandoning the lead entirely is an economic possibility with only very large conductors, where it may be cheaper to renew the insulation on a non-leaded cable, say once in 10 years, than to renew a lead jacket cable once in 20 years. These figures are, of course, merely used for comparison. If, therefore, we are compelled to use a lead sheath, the writer believes that it should be interrupted by some form of insulating joint on low tension cables.

If this plan is carried out, a serious difficulty is the inability to test the insulation of the cable. This may be met by the use of an insulated wire—proof or pressure wire—in the outer layer of strands forming the copper core. Such wire should be insulated with some material like treated paper susceptible to the absorption of moisture. Suggestions for the various uses of such a wire are given. For the purposes of initial tests when cable is installed, the joints in the sheath may be bridged by fine fuse wires, which are afterwards removed.

With high tension lines some of the troubles due to the metallic sheath on low tension cables less marked. The load is usually more uniform and subject to less violent fluctuation, especially where sub stations with batteries are in use, allowing protective devices to be set so as to operate more promptly. Further, in the case of a network such cables are usually protected against a reversal of current, so that the arc at the fault is not maintained by energy derived from the network or sub station.

The metal sheath on high tension cables must be earthed to prevent danger to life, and also risk of puncturing the insulation by cumulative static charge.

In the matter of sheaths, for a number of years the writer

has been advocating multiple conductor cables for arc circuits, instead of several cables in the same duct in trunk lines. The running of a lot of small cables in one duct is not good practice; a burn-out on one cable is likely to injure others in the duct, and the withdrawal of a defective cable for repairs is apt mechanically to injure the other cables. Of course, one conductor in a duct is ideal, but barred by cost in small sizes.

The writer considers the question, Should we use a heavy wall of a cheap so-called rubber compound, or a lighter wall of better quality? Thick insulation has, among other points, these against it: (1) Increased size of cable, involving increased cost of the sheath, duct space and handling; (2) thicker wall for heat generated in conductor to flow through, resulting in higher operating temperature in the copper core; (3) and, most serious of all, the frequent acceptance of a poor quality of compound having a very short life.

The last feature is the cause of the ill repute in which so many engineers hold rubber insulated conductors. There appears to be confusion in the minds of some engineers as to high insulation, resistance, high puncturing resistance and durability, which do not of necessity bear any relation to one another. An insulating material may have any one or any two of these, and be deficient as to the remaining quality or qualities. In reaching this conclusion the writer covers somewhat the same ground as Mr. John Langan, in a paper on rubber insulation, abstracted in THE INDIA RUBBER WORLD (July 1—page 326). But in any event a reasonable amount of good rubber in the present state of the art is necessary to insure durability.

A table of puncturing voltage, insulation resistance, and electrostatic capacity tests is given to show that these factors are not very good guides as to the durability of the insulation. In the case of the use of insulation compounds having three different amounts of rubber, the relative deterioration in one year in elastic limit was respectively 66 per cent., 30 per cent. and 20 per cent., though there was by no means a corresponding difference in the results obtained from the voltage and other tests.

There is little accurate knowledge as to the limit of durability of which insulated cables are capable. An idea of the life of a rubber cable leaded and operating at 11,000 volts, 25 cycles, is afforded by certain cables of the Cataract Power and Conduit Co. (Buffalo, New York). There are two 3 conductor cables, with rubber insulation $\frac{9}{32}$ inch on each conductor, no over all jacket. Each cable is 32,052 feet in length, of which about two-thirds was installed in 1897 and the remainder early in 1899. Yet it appears that there is no indication of any electrochemical or other electrical action weakening the ability of the insulation to withstand the working pressure. These, Mr. Clark believes, are the oldest working rubber-insulated 11,000-volt three-phase cables anywhere in use.

Further, these cables, originally operating alone, are now in multiple with some 32 miles of 3-conductor cables, and probably subjected to more severe strains than when first installed. From a study of the data he has collected regarding these cables, the writer believes that cables for very

* Presented at the 26th meeting of the American Institute of Electrical Engineers, New York.

high tension will be made with combined insulations of varying capacities, rather than with a homogeneous insulation of any insulating material now in use.

Cables are, roughly, of two classes: those whose insulating material is not injured by submersion in reasonably clean water, and a second class which will not withstand such test. For cables of the first class the metallic sheath is primarily for the purpose of lessening the rate of deterioration, and secondarily to protect against mechanical injury during installation. The sheath on these cables should be comparatively thin and be proportioned to the weight of the cable. The second class of insulation will only be serviceable so long as the sheath is intact, and therefore the metal should be heavier and show less variation as to its thickness with the weight of the cable. The writer does not mean to be understood as endorsing the specifications which call for $\frac{1}{4}$ inch lead on No. 6 wires, but rather the suggestion of a minimum thickness of $\frac{3}{8}$ inch on paper and jute insulated cables, increasing gradually in proportion to weight and diameter to say $\frac{5}{8}$ inch on the largest cables ($2\frac{7}{8}$ inch) now in common commercial use.

Mr. Clark hopes to see actively taken up the standardization of some of the principal dimensions of underground cables. In conclusion, he commends the following specifications, as better than any other he has seen:

SPECIFICATIONS 30 PER CENT. RUBBER INSULATING COMPOUND, RUBBER-COVERED WIRE ENGINEERS' ASSOCIATION.

The compound shall contain not less than 30 per cent. by weight of fine dry Para rubber which has not previously been used in rubber compounds. The composition of the remaining 70 per cent. shall be left to the discretion of the manufacturer.

Chemical.—The vulcanized rubber compound shall contain not more than 6 per cent. by weight of acetone extract. For this determination the acetone extraction shall be carried on for 5 hours in a Soxhlet extractor, as improved by Dr. C. O. Weber.

Mechanical.—The rubber insulation shall be homogeneous in character, shall be placed concentrically about the conductor, and shall have a tensile strength of not less than 800 pounds per square inch. A sample of vulcanized rubber compound, not less than 4 inches in length, shall be cut from the wire with a sharp knife held tangent to the copper. Marks shall be placed on the sample 2 inches apart. The sample shall be stretched until the marks are 6 inches apart and then immediately released; one minute after such release the marks shall not be over $2\frac{3}{4}$ inches apart. The sample shall then be stretched until the marks are 9 inches apart before breaking. For the purpose of these tests, care must be used in cutting to obtain a proper sample, and the manufacturer shall not be responsible for results obtained from samples imperfectly cut.

Electrical.—Each and every length of conductor shall comply with the requirements given in the following table. [The table is too extensive to be embraced here. It shows the results required in the case of rubber insulation of various thicknesses, from $\frac{1}{8}$ to $\frac{1}{2}$ inch.] The tests shall be made at the works of the manufacturer when the conductor is covered with vulcanized rubber, and before the application of other coverings than tape or braid. Tests shall be made after at least 12 hours' submersion in water and while still immersed. The voltage specified shall be applied for 5 minutes. The insulation test shall follow the voltage test, shall be made with a battery of not less than 100 nor more than 500 volts, and the reading shall be taken after one minute's electrification. Where tests for acceptance are made by the purchaser on his own premises, such tests shall be made within 10 days on receipt of wire or cable by purchaser.

Inspection.—The purchaser may send to the works of the manu-

facturer, a representative who shall be afforded all necessary facilities to make the above specified electrical and mechanical tests, and also to assure himself that the 30 per cent. of rubber above specified is actually put into the compound; but he shall not be privileged to inquire what ingredients are used to make up the remaining 70 per cent. of the compound.

THE HIGHEST TENSION CABLES.

THE notable rubber manufacturing firm of Pirelli & Co., at Milan, Italy, as was to be expected, figure to an important extent in the Milan exhibition, and particularly in their display of high tension cables. At the St. Louis exhibition, in 1904, the firm showed a cable designed for a normal working voltage of 50,000, while now at Milan they exhibit a cable designed for 100,000 volts, normal working pressure, which is expected to stand with ease 200,000 volts, and which will be tested with a special 300,000 volt transformer at the time of the Milan electrical congress, in September.

In this cable, says the *Electrical World* advantage is taken of all theoretically important points, the stranded conductor being covered with a lead sheath, thus producing a smooth surface of much greater radius, and by this simple device alone the static strain is considered to be reduced more than 10 per cent. The insulation is then wrapped in layers disposed in the order of decreased specific inductive capacity from the center of the cable to the circumference, and by careful choice of the materials an extremely uniform potential gradient to alternating current is presented.

An important theory of the grading of cables for capacity has been developed by the chief engineer of the Pirelli firm, Mr. Emmanuel Jona, now also president of the Italian Institute of Electrical Engineers. He was the author of an important paper read at St. Louis, in 1904, and which was abstracted shortly after in *THE INDIA RUBBER WORLD*.

The Pirelli firm are reported to be doing an important export trade. A recent purchase of their high tension cables by the Ontario Power Development Co., at Niagara Falls, has created much comment.

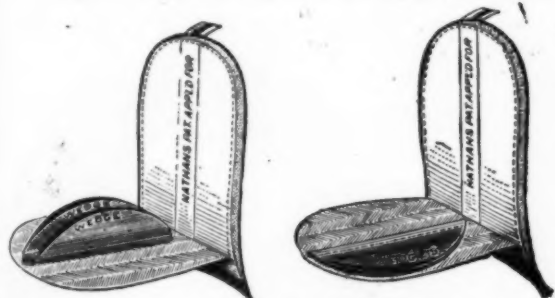
RUBBER IN FISH BAITS.

IT is safe to say that there is no article of the sportsman's equipment that has been derived from materials of greater variety and diversity than the fish lures which we designate by the general name of artificial baits, says *The Sporting Goods Gazette*. After discussing the artificial fly, the writer says: Rubber both soft and vulcanized is largely used and the former is also used in the making of artificial worms for bass and trout, the rubber cord being coated with what is known as ox-blood hued Japalac, a red enamel which is very durable and dries easily in the sun and air. The vulcanized rubber is most useful because it takes the color necessary to imitate the minnow, and if it be well varnished and dried hard, the hard rubber bait is one of the most durable and is the best material ever used for that purpose. Wood is used also and the hardest wood is the ash. It takes the color well and is easily formed to the right shape. Metal, especially nickel, is the material of some of the best of these baits, and the Devon minnow which is so much used for trout in Devonshire, England, and in New England is silver-plated and very brilliant and strong.

NEW GOODS AND SPECIALTIES IN RUBBER.

ADJUSTABLE ANTI-CROOKED HEEL CUSHION.

HHEEL cushions of various sorts of course are not new, but the Adjustable Anti-Crooked Heel Cushion is, and as may be readily surmised, it has been an instant success. It consists of rubber wedges inserted



in a heel cushion, and as shown in the illustrations, they may be placed in any desired position. Here they are partly raised in one instance and in the other both are on one side. Their use prevents the wearing over of heels and counters of shoes on either side, and will prevent jarring of the spine. They also give the wearer a springy step that makes walking a pleasure, and they can be arranged to give one an added height of from half an inch to an inch. The adjustment may be such that either side may be raised or they may be worn on the level. Much is claimed for this cushion for children, as they are particularly liable to run their heels over, causing weak ankles and flat-foot, and this misfortune, it is said, is overcome by the use of the Adjustable Anti-Crooked Heel Cushion. It is not attached to the heel of the shoe but is simply slipped inside. This cushion may be obtained in all sizes, for men, women, and children. [The Nathan Ankle Support Co., New York.]

FLEXIBLE RUBBER STEM.

THE genuine sport of the fisherman is enhanced a thousand-fold, to put it mildly, when using the Flexible Rubber Stem Patent Adjustable Cork Floats. Who would be without them? It is impossible for them to become entangled in underbrush, limbs, etc., the flexible stem bending so that the float will pass any obstruction. These floats are something quite new and novel, and they are immensely popular. A little device of this sort sometimes makes a vast difference in the turn of a day's sport and those who have been made happy in its use wonder why they had not long ago thought of the same thing, so simple is it in its conception and construction. Those who own these floats no longer have the experience of dealing with broken or pulled out stems. They

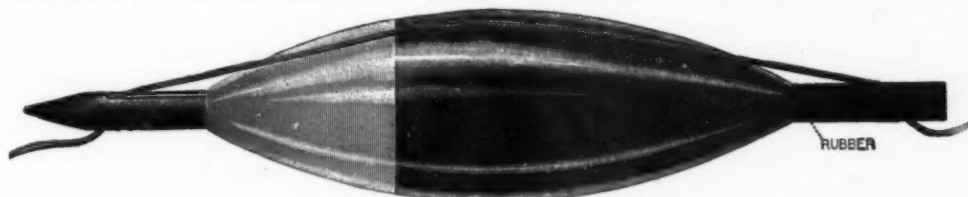
are made in all sizes and in egg and barrel shape. [Norvell-Shapleigh Hardware Co., St. Louis.]

BLACK RUBBER HEELS.

THE demand for rubber heels seems to be so much in evidence that some manufacturers are sending their shoes to dealers with these heels already attached. They have been so long with us that they are assured of a permanent place and no longer can be considered an experiment or a fad that will be of short duration. Since they have reached the stage of permanency there have been constant efforts to improve upon the first productions and in some instances this has been effectually done. The Black Rubber Heels are now having a heavy run. They have been made by a process whereby the heel is impervious to hard wear. Of course they wear out in time but they stand up longer and wear better than is usually expected of a rubber heel. As durability is one of the primary requisites it is not to be wondered at that the concern manufacturing them is shipping enormous orders. Dealers no longer have any trepidation about carrying a large supply, hence the increase in the output with the prospect that there will be no diminution so long as shoes are made as at present. One wonders what field rubber will next invade, so widespread has its use become and withal so satisfactory. Such a degree of comfort as has accrued from the use of the rubber heel makes thousands of pedestrians debtors to the bit of rubber and the power behind the throne that first suggested its use in this connection. The Black Rubber Heels are manufactured by Morgan & Wright, Chicago.

GOLF AND TENNIS BOTTOMS FOR SHOES.

IN playing golf it is necessary for the foot to turn upon the ball as upon a pivot, that a more powerful swing may be given to the golf club and the most telling blow struck. This necessitates the turning of the foot in a semicircle without raising it from the ground, and any attachment that would aid the movement would be an advantage to the player. In the golf and tennis bottoms a ring of rubber has been attached to the sole of the shoe under the ball of the foot, and a flexible semicircular piece to the sole at the toe. The ring alone is an effective attachment and is often used without the semicircular attachment at the toe. The advantage in having both is, that the player may swing on the ball of the foot or on the toe (the semicircle covering the sole of the shoe at the toe). The hollows formed within the attachments create a vacuum which tends to prevent slipping and this advantage combined with that of there being no injury to the grass on the links or on polished floors, puts this patent on the high road to success. Harry Sandeman of Lon-



FLEXIBLE RUBBER STEM ADJUSTABLE CORK FLOAT.

don, England, is the United States patentee.

THE WAYNE FOOTHOLD.

THE sandal footholds have long been the popular style but one that is fast gaining favor is that designed like the



storm rubber, but having no heel, the strap being somewhat broader, and fitting higher over the foot. This is really a substitute for a rubber in a sandal, the protection for the heel being really a secondary matter. These footholds come in the best grade of rubber and are made for both men and women. The protection that they afford with a minimum amount of rubber to be carried about is appreciated by those who object to wearing rubbers because of the tendency to draw the feet. [The Grand Rapids Felt Boot Co., Grand Rapids, Michigan.]

When a shaving brush is guaranteed to hold the bristles, it interests every man who shaves, and this means a large majority. The claims made for the "Bristletite" are somewhat extraordinary, yet the users of the brushes claim that they are well founded. The peculiar and careful process of making this brush, it might be said by way of explanation, is what warrants the claims for it. The bristles are not only tightly and firmly bound, and not only permanently and securely cemented with the best cement, but being shrunk into the shank of the handle, they are held with unyielding firmness. The handle, too, has its good qualities. Being of hard rubber it will never soak up, swell, or split, and it is not affected by water or soap. There is no varnish to scale off and it is perfectly sanitary. Besides this it has the attribute of attractiveness in appearance and this is desirable even in so small a matter as a shaving brush. [Hardman Rubber Co., Belleville, N. J.]

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TURCK'S NEEDLE DOUCHE.

THE physicians of the present day are, to a great extent, partakers of the benefits of the inventive genius, and of course it follows that every patient shares that benefit. Turck's Needle Douche and Intra-Gastric Bag have been most effective instruments in working out the desired results with the greatest satisfaction. The douche consists of a double tube with a perforated end to be introduced into the stomach, and a larger tube for the immediate return of the water. When the instrument is introduced into the stomach that organ immediately becomes inflated with air and a strong force of water is passed through the



smaller tube which projects the shower. This procedure will remove the material from the walls of the stomach that cannot be removed with ordinary lavage. It is a powerful muscular stimulant and also quickens the sluggish circulation. The bag used in connection with the douche is of finest Pará rubber, very light, but strong, and is fastened 6½ inches from the tube. [The B. F. Goodrich Co., Akron, Ohio.]

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HOPEWELL TIRE CASE.

By many, a tire case is considered almost an essential part of the auto outfit. The Hopewell Case is a continuous casing which wraps around the tire to protect it from water, dust, grease, etc., and is, everything considered, a great saving. It is simple in its arrangement, having a cord at one end and a metallic cable at the other. To adjust the case to the tire all that is necessary to do is to place the flap with cord smoothly around the tire, tighten the cord and tie. Then wind the remaining flap with wire cord around tire, adjust smoothly, pull cord tight and fasten in slots. The inner diameter of the case does not have to pass over the outside diameter; consequently the inner portion of the tire case is made a perfect fit to the tire and has no wrinkled appearance. These cases are made of enameled duck in black, and of artificial leather in the prevailing colors. [Hopewell Brothers, Cambridge, Massachusetts.]



Then wind the remaining flap with wire cord around tire, adjust smoothly, pull cord tight and fasten in slots. The inner diameter of the case does not have to pass over the outside diameter; consequently the inner portion of the tire case is made a perfect fit to the tire and has no wrinkled appearance. These cases are made of enameled duck in black, and of artificial leather in the prevailing colors. [Hopewell Brothers, Cambridge, Massachusetts.]

THE AMERICAN VIBRATOR.

IN these days of electrical supremacy in almost every department of mechanics, it is not strange that it should make its entrance into the realm of science and be accepted as an advance movement in the march of various professions. Among others the medical profession is recognizing its merits, and various appliances are being put onto the market for the most approved dissemination of this mysterious force. The American Vibrator is just now being looked upon with a good deal of favor seemingly, as it does, to hold great remedial potentialities. This is especially true because of its making possible a series of self treatments that need not be dispensed with when one is traveling. It was the first portable vibrator ever manufactured, and its weight is but three pounds with its case. It can be attached to any incandescent lamp socket and may be operated equally well on either the direct or alternating current. The perfect adjustability of its strike, and the ease with which it may be started or stopped all tend to increase its value appreciably. There is no unpleasantness in its use, the soft pressure of the small rubber cup being rather pleasant than otherwise. Leading physicians recommend the use of the vibrator for delicate children. By applying the soft rubber applicators to the tender muscles of the child the tissues are developed. [The American Vibrator Co., St. Louis.]

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RECENT RUBBER PATENTS.

UNITED STATES OF AMERICA.

ISSUED JUNE 26, 1906.

NO. 824,240. Supplemental tire for vehicle wheels. C. H. Goodman, Bucyrus, Ohio.

824,241. Vehicle wheel. W. E. Greer, Akron, Ohio, assignor of one-half to G. H. Conrad, Coventry township, Summit County, Ohio.

824,375. Eraser tip for lead pencils, penholders, pencil point protectors and the like. F. McIntyre, assignor to Eagle Pencil Co., both of New York city.

824,416. Pipe or hose and process of manufacturing the same. P. Sechiari, Paris, France, assignor to La Société Civile d'Etudes de L'Indéchirable Grimson, Lyon-Villeurbanne, France.

824,454. Bath tub [with shower bath attachment]. W. Vanderman, Willimantic, Conn.

824,471. Nebulizer. A. C. Eggers, assignor to Goodyear's India Rubber Glove Mfg. Co., both of New York city.

824,476. Wheel tire. T. Furlong, St. Louis.

824,515. Storm front for vehicles. C. M. Stone, assignor of one-third each to F. I. Barrows (trustee) and F. I. Barrows, all of Connersville, Ind.

824,604. Pneumatic tire. C. R. Twitchell, assignor of one-half to J. M. Brennan, both of Los Angeles, Cal.

824,605. Belt. J. M. Van Orden, Cedar Grove, N. J., assignor to Van Orden Corset Co.

824,631. Combination stopper and liquid dropper. J. L. Dunnock, Baltimore, Md.

824,664. Life preserver. G. Krieger, Brooklyn, N. Y.

824,670. Hose coupling. J. F. McElroy, assignor to Consolidated Car Heating Co., both of Albany, N. Y.

824,683. Pneumatic carpet cleaner. J. L. Chestnutt, Chicago, assignor to T. G. Orwig, Des Moines, Iowa.

Trade Marks.

8,049. Unlined linen fire hose. C. Nuhring, Cincinnati, Ohio. *Essential feature.*—The letters I X L.

19,045. Dress shields. The Stork Co., Boston, Mass. *Essential feature.*—The word STORK associated with the representation of a stork.

ISSUED JULY 3, 1906.

824,753. Hose coupling. J. J. Stephens, Vernon, Texas.

824,772. Vehicle wheel [with pneumatic cushion in the hub]. J. A. Yarger, Nashua, Iowa.

824,774. Storm apron for vehicles. H. C. Benner, Lancaster, Pa.

824,778. Cushion tire. J. C. Burdick, Jr., Flushing, N. Y.

824,790. Fountain pen. S. W. Jameson, Kansas City, Mo.

824,817. Fish bait or lure. B. O. Rhodes, assignor to W. Shakespeare, Jr., both of Kalamazoo, Mich.

824,844. Elastic tire. A. W. Carpenter, London, England.

825,060. Process for reclaiming vulcanized rubber waste. A. Kitel, Vienna, Austria-Hungary.

825,117. Hose coupling for cars. D. P. Fahrney, H. E. Doran, and G. E. Newton, Springfield, Mo.

825,220. Hose coupling. A. W. Irvin, Altoona, Pa.

825,269. Tire. W. A. Field, Chicago.

ISSUED JULY 10, 1906.

825,287. Tire plug. D. Apstein, Bridgeport, Conn.

825,354. Pipe coupling. P. J. Schnoor, Holstein, Iowa.

825,437. Horseshoe. J. B. White, Buffalo, N. Y.

825,442. Fountain pen. F. W. Bender, Hoboken, N. J.

825,480. Nozzle coupling. P. Paterson and W. Gregory, Cleveland, Ohio.

825,515. Spring heel cushion for shoes. M. Byrne and W. G. Young, San Francisco, Cal.

825,561. Abdominal supporter. K. L. Storm, Philadelphia, Pa.

825,572. Apparatus for inflating vehicle tires. M. A. Baker, Los Angeles, Cal., assignor to A. T. Fisher, Brooklyn, N. Y.

825,575. Lawn sprinkler. K. A. Barkelew and C. L. Grigsby, Redlands, Cal.

825,715. Cover for pneumatic tires. E. Fortier-Beaulieu, assignor

to Ste. Fortier-Beaulieu, both of Roanne, France.

825,821. Wheel [with cushion blocks mounted between the felloe and a metal tire]. I. W. Giles, New Bedford, and C. W. Tobey Fairhaven, Mass.

825,851. Rubber footwear. P. M. MacKaskie, assignor of one-half to K. Pittman, both of Tonopah, Nev.

825,869. Attachment for golf or tennis boots or shoes. H. Sandeman, London, England.

ISSUED JULY 17, 1906.

825,930. Composition for sealing punctures in pneumatic tires. J. E. Noe, San Francisco.

826,018. Hose coupling. I. R. Concoff, Portland, Oregon.

826,073. Cushion for hernia trusses. W. Wagner, Kreuznach, Germany.

826,091. Syringe. A. B. Dorman, Winthrop, Mass.

826,143. Tire construction. J. C. Cole, assignor to The Fisk Rubber Co., Chicopee Falls, Mass.

826,144. Tire fastening device. *Same.*

826,145. Swimming apparatus. Z. T. Cox, Salt Lake City, Utah.

826,172. Syringe. C. J. Kintner, New York city.

826,188. Syringe. A. W. Nicholls, Chicago.

826,213. Apparatus for vulcanizing rubber tires. N. Ahrbin, New York city.

826,338. Wheel tire. J. H. Kressler, Bethlehem, Pa.

826,353. Coupling retaining means for metallic hose. R. B. Panton, Williamsport, Pa., assignor of one-third to J. H. Bailey, Muncy, Pa., and W. Bailey, Jersey Shore, Pa.

826,405. Elastic tire. A. T. Collier, St. Albans, England, assignor to The Reilloc Tyre Co., Ltd., London.

826,461. Vehicle tire. C. E. W. Woodward, Chicopee Falls, Mass., assignor of one-half each to Knox Automobile Co., Springfield, Mass., and Olds Motor Works, Detroit, Mich.

826,490. Tire. J. H. Swain, assignor, by mesne assignments, to H. M. & S. Armored Tire Co., Inc., both of Pittsburgh, Pa.

826,504. Boot or shoe heel. J. R. Hauptenthal, Auburn, N. Y.

ISSUED JULY 24, 1906.

826,552. Fountain pen. C. Dunn, New York city.

826,612. Tire. [Pneumatic.] W. B. Sawyer, assignor of one-third to S. G. Armstrong, both of Riverside, Cal.

826,617. Wheel [with pneumatic tire]. G. Shugers, Auburn, Ind.

826,622. Solid rubber tire. J. A. Swinehart, Akron, Ohio.

826,623. Pneumatic tire. *Same.*

826,685. Medical irrigator. J. A. Noble, San Francisco, Cal.

826,740. Rubber overshoe. L. Peroitt, Newark, N. J.

826,865. Wheel [with pneumatic tire]. J. W. Meixell, Lewisburg, Pa.

826,914. Vehicle wheel. L. A. Allwine, assignor of one-half to L. C. Worlen, both of Lorain, Ohio.

826,958. Horseshoe. W. D. O'Brien Snow Shoe, Pa.

826,959. Horseshoe. *Same.*

826,960. Horseshoe. *Same.*

827,004. Fountain pen. B. F. Flint, assignor to D. B. Kaufmann, both of Cincinnati, Ohio.

827,020. Cushion tire. T. Howard, Philpot, Ky.

827,022. Fountain pen. D. B. Kaufmann, Cincinnati, Ohio.

ISSUED JULY 31, 1906.

827,159. Teat cup for milking machines. F. A. Lane, assignor to D. H. Burrell & Co., both of Little Falls, N. Y.

827,169. Teat cup for milking machines. *Same.*

827,174. Spraying machine. J. W. Patterson, Reed City, Mich.

827,236. Combined rubber dam clamp and holder. H. J. Hansen, La Crosse, Wis.

827,277. Art of making hollow hard rubber articles. W. W. Weitling, College Point, N. Y., assignor to American Hard Rubber Co.

827,321. Cushion tire. W. H. Parham, Paducah, Ky.

827,350. Signal attachment for life preservers. A. C. Crofford, Newcastle, Wyo.

827,376. Fountain brush. B. D. Knickerbocker, assignor to Knickerbocker Mfg. Co., both of Chicago.

827,383. Aseptic syringe. P. J. McElroy, Cambridge, and W. A. Randall, Swampscott, Mass.

827,490. Exercising bag. W. G. Wood, San Francisco, Cal.

- 827,494. Vehicle wheel [with pneumatic ring tube in the hub]. G. W. T. Akehurst, White Marsh, Md.
 827,536. Air cleaning apparatus. G. J. Kindel, Denver, Colo.
 827,556. Vehicle tire. F. E. Newcomb, Cleveland, Ohio.
 827,601. Lock horseshoe. W. Basjanoff, Moscow, Russia.
 827,640. Adjustable compressor for flexible tubes. J. J. Jessup, assignor to Brass Goods Mfg. Co., both of Brooklyn, N. Y.
 827,650. Ear trumpet. C. W. Levalley, Milwaukee, Wis.
 827,693. Hypodermic syringe. F. W. Korb assignor to The United States Dental Mfg. Co., both of Cleveland, Ohio.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the Application, which in the case of those listed below was in 1905.

* Denotes Patents for American Inventions.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JUNE 27, 1906.]

- 3,835 (1905). Inhaler for administering anaesthetics. M. H. Donston, Tottenham, Middlesex.
 3,878 (1905). Ear appliance [for persons with impaired hearing; a telephone receiver with one or more transmitters, and provided with a handle containing batteries and an induction coil]. S. Oppenheimer, London.
 3,881 (1905). Stopper for preserve jar. J. M. Cairns, Paisley, Renfrewshire.
 3,950 (1905). Protective cover for pneumatic tire [consisting of studs riveted to a tread band]. B. Brooks, Birmingham.
 4,019 (1905). Pneumatic wheel. [An elastic tube is interposed between the nave and the outer portion of the wheel.] E. C. Waile, Lewes.
 4,112 (1905). Vehicle wheel. [A flexible chain for use on pneumatic tire covers, as a driving band, is formed of interlocking metallic links, fitted with elastic pads.] G. Helps, Nuneaton, Warwickshire.
 4,184 (1905). Means for attaching pneumatic tires to wheel rims. C. H. Stotesbury, and T. P. Reid, East Dulwich, Surrey.
 4,184a (1905). Protective nonskid band for pneumatic tire [comprising rows of metal linked together by bolts, which may serve to fasten the band to a cover on the tire]. Same.
 *4,253 (1905). Elastic tire [having its base wider than the metal rim so as to be compressed by detachable side-flanges; is secured by means of endless rings]. A. S. Krotz, Springfield, Ohio.
 4,270 (1905). Elastic tire. [The outer rim is connected to the wooden rim by a series of blade springs, and comprises hoops of leather and India-rubber fastened together by bolts.] G. Floquet, Paris.
 4,302 (1905). Pneumatic tire. [Inner tubes are protected by a canvas backing connected to the rubber by vulcanization, the narrow strip left uncovered, opposite the wheel rim, being strengthened by an additional rubber facing.] C. E. Lange, Gotha, Germany.
 4,356 (1905). Metal armor for pneumatic tires to prevent slipping and puncture. B. Birnbaum, London.
 [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 4, 1906.]
 4,457 (1905). Appliance for preventing wind-sucking in cattle. [Consists of a band with a pad on its underside and an elastic band attached to its ends]. F. Rettenberger, Starnberg, Munich, and T. Kranz, Steindorf Bruck, Upper Bavaria.
 4,468 (1905). Elastic tire. H. Gilardoni and H. Leriche, Paris, France.
 4,790 (1905). Pneumatic tire. [To prevent slipping a series of projections having cup like recesses are molded to the tread.] T. W. Moore, Manchester.
 4,828 (1905). Pneumatic tire [having leather tread band fitted with metal plates]. J. O. O'Brien, Manchester. (A. Dutrieux-Lamelin, Le Quesnoy (Nord) France)
 [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 11, 1906.]
 5,168 (1905). Tire cover made of leather to prevent puncture. R. and C. H. Wallwork, Manchester.
 *5,249 (1905). Horseshoe. F. M. Miller, New York.
 5,258 (1905). Elastic tire [formed of a fabric tube filled with an artificial rubber which is a product of oil and sulphur]. L. Ponnansky, Berlin, Germany.

- *5,534 (1905). Elastic tire. W. L. Ring and P. L. Cooper, Saginaw, Michigan.
 5,571 (1905). Protective tread, made of blocks of rubber, for pneumatic tires. J. Russell, Newcastle-on-Tyne.
 *5,580 (1905). Vulcanizer for the repair of tires without removal from the wheels. J. M. Padgett, Topeka, Kansas.
 [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 18, 1906.]
 5,855 (1905). Leather band to prevent tire punctures. J. Pullman, Teddington, Middlesex, and E. E. Pullman, Godalming, Surrey.
 5,858 (1905). Device to prevent tire punctures. [Consists of two metallic rings interposed between the outer cover and the air tube.] W. Helme and F. Curzon, Liverpool.
 5,917 (1905). Self closing rubber valve for tire tubes. W. R. Darling, Patrick, Lanarkshire, Scotland.
 *5,927 (1905). Elastic tire. F. H. Bowly and D. J. Runyon, New York.
 *5,965 (1905). India-rubber fabric. [Hard rubber is combined with a textile fabric in the manufacture of wipers for horses, dashboards, etc.] W. R. Sine, Jersey City, N. J., and J. S. Rosenthal, Baltimore, Maryland.
 5,971 (1905). Pneumatic tire. [Air tubes are constructed with a longitudinal fold to prevent their being injured when the flanges of the outer cover are being placed in position.] F. Veith, Odenwald, Germany.
 *6,065 (1905). Mat [for use in bath tubs]. J. H. Pugh, New York.
 6,148 (1905). Vaporizer; inhaler. H. C. Payne, London.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION.)

- 360,387 (Dec. 13). H. H. Frost. Vulcanizing apparatus.
 360,461 (Dec. 14). A. B. Dehoulet. Puncture proof tire.
 360,468 (Dec. 14). Elastic tire.
 360,531 (Dec. 12). A. Deier. Pneumatic wheel.
 Results Attained from Conveyor Belts.
 360,538 (Dec. 18, 1905). Cheverau. Skid tread.
 360,586 (Dec. 19). J. A. Meline. Quick repair tire.
 360,651 (Dec. 19). J. de Pontoux. Pneumatic tire.
 360,688 (Dec. 19). Dunn & Ross. Pneumatic tire.
 360,689 (Dec. 18). C. Mireau. Skid tread.
 360,606 (Nov. 22). J. Bötsch. Elastic tire.
 360,750 (Dec. 21). Faus. Pneumatic tire.
 360,776 (Dec. 22). L. G. Worms. Rubber tire.
 360,804 (Nov. 23). Dussart and Accout. Puncture proof tire.
 360,828 (March 13). Decobert. Skid tread.
 360,887 (Dec. 23). Romain Talbot. Pneumatic tire.
 360,920 (Dec. 23). Continental Caoutchouc and Guttapercha Co. Rivet for skid treads.
 360,968 (Dec. 27). R. S. Bryant. Rim for tires.
 360,985 (Dec. 27). Foussadier. Rivet for skid treads.
 361,028 (Oct. 11). G. Juzan. Tire tread.
 361,052 (Nov. 28). Petracchi. Rim for tires.
 361,074 (Dec. 11). P. Nivet. Pneumatic tire.
 361,105 (Dec. 22). Auberge. Spring wheel.
 361,167 (Dec. 29). Besombes. Puncture proof tire.

[NOTE.—Printed copies of specifications of French patents may be obtained from R. Bobet, Ingenieur-Counsel, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

BRITISH investors seem not disposed to limit their interest in rubber to their colonies in Asia, judging from the issue of a prospectus of The Zambesi Rubber Plantations and Fruit Farms, Limited, with £50,000 capital, under the companies ordinance of Southern Rhodesia (Africa), to acquire a concession of 10,000 acres granted to Sydney Redrup from the British South Africa Co., north of the Zambesi river. The plans involve the planting of 250,000 rubber trees, within three years, at an estimated cost of £12,000. Various fruits are also to be cultivated. The secretary is J. C. Pilsworth, 1, Scott's building, Bulawayo.

RUBBER TIRES FOR FIRE APPARATUS.

THOUGH it is only nine years since the first fire fighting machine was equipped with rubber tires the success of the change has been so marked that at this time the New York fire department alone has in use 150 vehicles upon which the old style steel tires have been displaced by those of rubber. Gradually the substitution is being effected, and as all new machines purchased are required to have rubber tires, it is a matter of a comparatively short time when the metal tire will have passed into oblivion, so far as this city is concerned. As New York sets the pace for America in whatever pertains to fire extinguishing and prevention, it is but recording a fact to state that in all the larger and most of the smaller cities, the tire question is in the same state of transformation.

Early in 1897 some genius in Boston suggested that rubber tires could be advantageously applied to fire apparatuses. So rapidly do events succeed each other in this busy world that the identity of this Boston genius has been lost and all record of his experiments. At all events, he got hold of a hand engine and fitted it with rubber tired wheels. The experiment attracted but little attention and all interest in it soon died out. It is said that the tires were neither well made nor securely fastened, and that the desired results were not attained.

One man who did not lose sight of the matter was Curtis Wigg, a wideawake, enterprising and insistent salesman for what was then the American Rubber Tire Co., of New York. He had unbounded faith in rubber tires for anything that ran on wheels. Chief Bonner was then at the head of the New York fire department. Wigg kept persisting and insisting until he got Bonner to look with some favor upon rubber tires and at last to give them a trial.

Engine No. 23, in one of the quieter districts "uptown," was selected for the experiment. In due time the enthusiastic Wigg was able to report that the tires were on and the machine ready for business. Subsequent events proved the soundness of Wigg's theories and the wisdom of Bonner's acquiescence. The experiment was a success from every point of view. So enthusiastic did the latter become that he had rubber tires fitted to his own runabout, known in the department as a "chief's wagon." There are 53 chief's wagons in the department and to-day every one of them runs on rubber tires. Mr. Wigg, who by-the-way, is still in the rubber tire business in New York, had the satisfaction

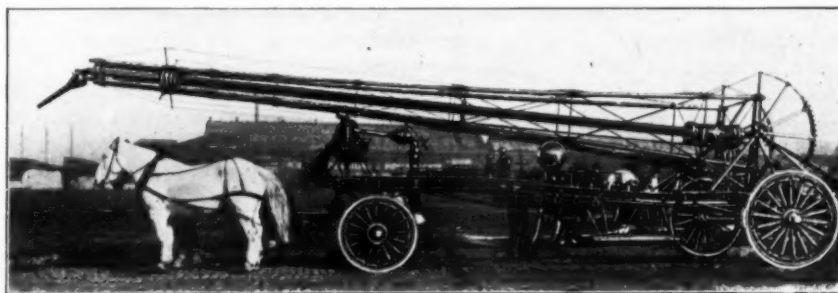
of seeing the skeptics in the trade converted to his way of thinking, though not with unmixed satisfaction, since some of these doubters entered the field as competitors for fire department business.

The tires used on the first steam fire engine were made under the Grant patent, having two longitudinal wires running through the rubber to retain it in the rim channel. The same type is still used, and is the most popular in the fire department. In the largest tires 4 wires are used. These tires are 4 inches wide. In $3\frac{1}{2}$ inch tires 3 wires are used. These tires are used on the water towers, engines, and trucks. The hose wagons and other lighter vehicles are equipped with tires having but 2 wires. All the other types of solid tires are also used. Under the present system of awarding contracts no company can have a monopoly of the business. Bids are advertised for and the contract is given to the lowest bidder for furnishing tires according to specifications supplied by the department.

It is claimed, and not disputed, that the severest test that can be put upon rubber tires is the fire department service. The apparatus is exceedingly heavy, and in responding to alarms the best possible speed must be made regardless of conditions, either of apparatus or streets. Strangely enough, there is little call for repairs to the rubber tires used in the fire department. When repairs are necessary, the job is "let out," generally to the concern that supplied the tires.

But tires will wear out, which is a different story. In this connection it is worth noting that good rubber tires will last from one to three years, according to service demanded of them. The greatest foe to the rubber tires on fire apparatus is the car tracks which gridiron the city streets. Under the circumstances the life of the tires is satisfactory to the fire department officials.

There are several distinct advantages possessed by rubber over metal tires. The greatest of these is economy, and the lesser ones are but offshoots that lead up to it. The loss due to the jolting and vibration, particularly to fire engines, amounts to considerable each year; not to mention the crippling of the department by having the machines go often to the repair shop. The mechanism of the engines gets worn, broken, and loosened, while the other vehicles are thrown out of working condition. Much of this has disappeared since rubber tires were introduced, and there will be a still greater reduction of expenditures for repairs when all



HEAVY FIRE APPARATUS WITH RUBBER TIRE EQUIPMENT.

the apparatus has been rubber tired.

The equipment of wheeled apparatus of the New York fire department in three of the boroughs—Manhattan, the Bronx, and Richmond—includes 129 fire engines, averaging 8000 pounds in weight; 55 hook and ladder trucks, 10,000 pounds; 113 hose wagons, 3500 pounds; 53 chief's wagons; and 5 water towers, 7000 pounds. The specifications for tires are as follows:

"Three-and-a-half inch solid rubber tires are to be put on forward wheels and 4 inch on hind wheels, containing not less than 50 per cent. of para rubber, free from scrap or other injurious material, manufactured in a thoroughly high grade and first class manner; the base fastening to be of such construction as to overcome and prevent the rubber being cut through or out and guaranteed to prevent the tire from creeping or loosening on the wheel."

TREATMENT OF GUAYULE RUBBER.

DR. WALTER ESCH, a German chemist of note, who has made a special study of the new Guayule rubber, was commissioned recently to visit England for the purpose of demonstrating to the rubber manufacturers there the properties of the Mexican product. From an interview with Dr. Esch in *The India-Rubber Journal*, it appears that Guayule rubber has received little attention at the hands of British manufacturers; "altogether there were only two manufacturers who knew how to make profitable use of this cheap raw material." The point is made that Guayule cannot be treated in manufacturing the same way as Para and other kinds. The Guayule shrub does not contain latex, as other rubber trees do, but rubber already of a rather consistent kind. As now prepared, this rubber contains considerable wood fiber, which, when the ordinary washer is used, is forced into the rubber instead of being removed. Dr. Esch advises the use of the old wash-hollander, which cuts the rubber into small pieces. By heating the water used, the Guayule expands, causing the particles to lose their adherence, so that the wood fibers are freed and drop to the bottom. After this treatment, the Guayule requires to be washed in cold water and then spread on a wire netting and dried in dark rooms at a low temperature.

There are to be considered in connection with compounds containing Guayule the slow vulcanization and the resin contents. Guayule belongs to the class of very slowly vulcanizing rubbers, and for these an addition of heavy calcined magnesia is desirable. Dr. Esch stated that he knew of three rubber shoe works which had used Guayule with satisfactory results. He believes it well adapted even for making hard rubber combs. He had seen a comb mixture consisting of 2-3 Guayule and 1-3 Para which experienced working managers considered as good, apparently at least, as a mixture of 2-3 Para and 1-3 Guayule.

* * *

THE United States consul at Saltillo, Mexico, Mr. Duhaime, reports: "Many sales of Guayule on the ground have been reported at over five times the price at which the land itself was held at previous to this boom. The buying up of this shrub began about the latter part of the year 1904, at \$15 Mexican currency per ton. But, owing to the numerous parties anxious to secure quantities large enough to justify them in erecting factories for the extraction of the gum,

buyers now find it very difficult to arrange deals. Recently, contracts for large lots have been reported at as high as \$100 Mexican currency per ton."

CHARLES R. FLINT IN RUSSIA.

A SERIES of letters on affairs in Russia, both entertaining and informing, is being contributed to the New York *Globe* by William E. Curtis, one of the best newspaper correspondents of the time. A recent letter is devoted to news and gossip concerning the Americans now in St. Petersburg, including the following reference to one who was so long prominent in rubber interests:



CHARLES R. FLINT.

burg, including the following reference to one who was so long prominent in rubber interests:

"Charles R. Flint, of New York, is becoming more or less a permanent resident of St. Petersburg. He has been here for more than a year doing business with the government. He has sold several torpedo boats and a quantity of naval

and military supplies, and has been trying to induce the minister of marine to buy the entire fleet of Chili and the Argentine republic, which are offered for sale because those two enterprising nations have entered into a treaty of permanent peace. They have both agreed to disarm and tie themselves together with olive branches. The Russian government, however, has no money to spend for cruisers and battleships just now. So Mr. Flint is watching events.

"When the political troubles are over and things settle down he thinks that Russia will be the most profitable field for enterprise in all the universe. In the mean time he is learning the language and making valuable acquaintances among influential men in financial and political circles.

"Mr. Flint spends a good deal of time at the Duma, where the coming men, the prospective leaders of Russian affairs and future cabinet ministers, are to be found. The leaders of the Duma are eager to get his advice and counsel."

THE seventh annual automobile show in New York, under the auspices of the Automobile Club of America and the American Motor Car Manufacturers' Association, will be held during the first week in December, instead of January as in former years. This change of date is due to a general desire on the part of automobile manufacturers to place their new models before the public earlier in the season than has been the case in the past. No doubt the rubber tire manufacturers will appreciate the change for a like reason. The show will be held at the Grand Central Palace, the largest building available for exhibition purposes in New York. Paris salon and the Olympia show in London have always been held in December.

RUBBER PRODUCTION OF THE WORLD.

CONGO RUBBER AND THE ANTWERP MARKET.

IT may possess interest for many in the trade, in view of the varying opinions which exist in regard to the future of the Congo rubber output, to have a statement of the yield of the various districts for three years past. In the table first given on this page is a statement of the quantities of rubber received at Antwerp in each year, in kilograms, and by companies. It should be added that these are gross weights, and therefore some larger than appear in the usual statistical records, in which the tare is deducted.

ARRIVALS OF RUBBER IN THE ANTWERP MARKET (GROSS WEIGHTS), BY COMPANIES.

CONGO FREE STATE:	1903.	1904.	1905
Société Générale Africaine.....	2,881,000	2,080,484	2,068,236
Société A B I R.....	951 000	487 498	358 673
Sté Anversaise du Commerce au Congo.....	525,500	316,918	89,510
Comité Spécial du Katanga.....	28 000	106,380	56,041
Cie du Chemin de fer des Grands Lacs.....	101,000	60,997	159,998
Société An. Isanghi.....	61,400	56,611	56,041
Compagnie du Kasai.....	815,000	910,551	1,209,889
Sté An. Belge Commerce du Haut Congo.....	150,600	97,369	107,155
Compagnie du Lomami.....	183,000	138,981	125,876
Soc. An. La Belgica.....	6,500	5,600	3,650
Société An. l'Ikelemba.....	3,100	7,746	10,260
Société Equatoriale Congolaise....	22,400	24,828	17,638
Société Anonyme La Lulonga....	38,500	30,959	6,574
Camille D'Heygere.....	.....	11,294	4,013
Comptoir Commercial Congolais....	137,700	134,871	114,994
Cie Bruxelloise pr Commerce au Congo.....	.....	10,916	22,389
Compagnie Andrea.....	3,200	.....	.....
Total Belgian Companies.....	5,908,700	4,488,003	4,511,118
FRENCH CONGO:			
Société Ibenga.....	.....	1,098	.....
Société du Baniembe.....	.....	13,198	3,956
Soc. Agricole de l'Alima.....	.....	22,768	29,247
Messageries Fluviales du Congo..	.....	3,857	.....
Société Alimaïennes.....	.....	53 227	24,085
Société de la Mobaye.....	.....	.....	.....
Compagnie Française du Congo ..	.....	12,593	20,207
Cie Française du Haut Congo.....	.....	47,532	60,212
Soc. Anonyme La Kotto.....	.....	15,425	24 699
Sté An. de la Haute Sangha.....	.....	98,265	98,090
Sté Ekela Kadei Sangha.....	.....	85,916	112,786
Cie des Produits de la Sangha....	.....	15,080	.....
Sté de la Sangha Equatoriale.....	.....	.....	2,236
Sultanats du Haut Oubanghi.....	.....	89,073	158,611
Sté Anonyme M'Poko.....	.....	72,425	85,870
Cie N'Goko Sangha.....	.....	23,442	23,487
Sté An. des Procédés d'extraction.	.....	4,161	809
Compagnie de la Lobay.....	.....	43,629	68,901
Cie du Kouango Français.....	.....	10,619	27,794
Sté de la Haute N'Gounié.....	.....	1,443	3,910
Cie du Kouilou Niari.....	.....	4,200	10,569
Cie Coloniale Ogooué N'Gounié..	.....	8,034	6,754
Soc. de l'Est Africain.....	.....	.....	53,077
Société du Haut Ogooué.....	.....	.....	15,940
Etablissements Malgaches Gratry (Madagascar).....	.....	.....	43,905
Société de l'N'Kémé & de l'N'Ken	.....	.....	16,010
Henry Laloux.....	.....	.....	14,170
Total French Companies.....	.....	625,985	905,319
KAMERUN:			
Société Süd Kamerun.....	53,100	44,369	64,791
General Total.....	5,158,357	5,481,228	.....

OUTPUT OF RUBBER FOR THREE YEARS, FROM THE CONGO FREE STATE, BY DISTRICTS.

CONGO DISTRICTS—	Gross Weight in Tons.		
	1903	1904.	1905.
L'Equateur.....	2500	1800	1600
Kasai.....	900	1000	1200
Bangala.....	800	600	600
Stanley-Falls.....	400	300	300
L'uele.....	300	200	200
Lac Leopold.....	250	100	50
L'Aruwimi.....	250	100	100
L'Ubanghi.....	150	100	70
Lualaba and Katanga.....	150	250	270
Kasongo.....	250	100	100
Stanley-Pool.....	50	50	50
Cataracts.....	50	50	50
Mayumbe and Lower Congo.....	10	30	30
Total.....	5960	4480	4510

But the table as stands shows whether or not a given company is receiving more or less rubber now than formerly.

The second table, also dealing with gross weights, shows a falling off in the yield of some districts of the Congo Free State, while other districts are yielding more. The reason for this latter fact it would be of interest to know. Or, it might be asked whether all these districts will in time show a decline in production.

In one of the tables details are given in regard to the rubber coming to Antwerp from the French Congo, the yield of which country has been showing an increase of late, after a considerable decline.

THE LATEST PARA CROP YEAR.

THE total arrivals of rubber at Pará during the crop season ending June 30, 1906, amounted to 34,490 tons, against 33,060 tons in the year preceding and 30,580 tons in 1903-04. Heilbut, Symons & Co. (London and Liverpool) have prepared the following synopsis of the disposal of the Amazon output for the latest twelve months:

	Pará.	Caucho.	Total.
Visible supplies June 30, 1905.....tons	1,850	880	2,730
Pará arrivals to June 30 1906.....	28,340	6,150	34,490
Aggregating.....	30,190	7,030	37,220
*Loss through shrinkage afloat...	2,250	330	2,580
Leaving available.....	27,940	6,700	34,640
Deliveries for consumption.....	25,140	6,020	31,160
Visible supplies June 30, 1906.....	2,800	680	3,480
The deliveries for consumption during the twelve months under review are analyzed by the same firm as follows:			
	Pará.	Caucho.	Total.
From Liverpool.....tons	9,010	3,130	12,140
From Continental Ports.....	4,060	1,100	5,160
From New York.....	12,070	1,790	13,860
Total.....	25,140	6 020	31,160

They report that throughout the year European manufacturers were working with very small reserves. Deliveries were larger than in the preceding year, indicating a very large increase in consumption. In America deliveries appear to have been somewhat smaller, but the actual consumption was probably unchanged. At the beginning of the crop year

* Between Pará and consuming ports, estimated at 8 per cent. on Pará sorts and 5 per cent. on Caucho.

considerable stocks were held by American factories, which for statistical purposes were then regarded as taken into consumption, whereas these quantities were, in reality, only used up by degrees. Such a position does not now exist, and it is probable that for some time to come deliveries will give a nearer indication of the consumption.

Heilbut, Symons & Co. regard the outlook for the new crop one of normal development, with an eventual total of not less than for the season lately ended.

HECHT'S RUBBER STATISTICS.

FOR reasons which will be appreciated in the trade, it is impossible to state positively how much rubber is produced or consumed in the world in any year. It is of interest, however, to consider the results of the most careful estimates possible to be made by leading houses, and such an estimate appears in the annual statistical chart of Hecht, Levis & Kahn, of London, for the year ended June 30, 1906. The figures they obtain, relating to every kind of rubber, compared with their returns for the preceding year, are as follows:

	1904-05.	1905-06
Total arrivals in Europe..... tons	35,386	37,486
Total arrivals in America	29,893	25,596
Aggregating.....	66,279	63,082
Total deliveries for consumption in Europe	35,712	36,670
Total deliveries in America	29,371	25,904
Aggregating.....	65,083	62,574
Stocks in Europe, end of year.....	2,670	3,486
Stocks in America.....	862	554
Approximate total production.....	3,532	4,040
Approximate total consumption.....	68,879	67,999
Approximate total visible supply.....	65,083	62,574
	4,584	5,312

TIRE TROUBLES ON THE GLIDDEN TOUR.

THE question of tires is discussed by two writers in *The Horseless Age* in reviewing the results of the late 1200 mile Glidden tour. Harry B. Haines says: "The run had been a hard one on tires and on the cars which had not replaced shoes these were in shreds, being full of sharp cuts and stone bruises, the result of the high speed work done regardless of road conditions. One thing that was noticeable, however, was that there had been very few blow outs, and most of the tire troubles had been the result of punctures. It was evident that the present tire product is a better one and more serviceable than that of a year or two ago."

While hard luck in the matter of tires pursued certain cars in the contest quite relentlessly, says Albert L. Clough, there were a few cars which came through with little or no tire troubles. It would be interesting to know how much the tire expense was for the entire tour and how many tubes and covers were used, but no official records were kept on this or on any technical question. "One thing is certain that the time and labor required for the repair of tire troubles have been greatly reduced of late, by the use of improved methods of tire fastening. Quite a number of cars have lost their clean scores through delays occasioned by tire trouble, and it is to be regretted that there is no available method by which delays due to this cause can be allowed for, so as not to count against the reputation of the car which suffers them."

BRITISH RUBBER GOODS EXPORTS.

EXPORTS of British manufactures of India-rubber goods during two years past, as officially stated, were in value as follows:

	1904.	1905.
Boots and shoes	£ 205,035	£ 236,403
Other rubber goods.....	1,214,494	1,284,497
Waterproofs	258,388	227,893
Total	£ 1,677,917	£ 1,792,793
In U. S. money.....	\$8,199,144	\$8,760,483

Exports to the United States amounted in 1904 to £57,380 of British and £6305 of foreign manufacture and in 1905 to £55,765 of British and £20,409 of foreign manufacture. No waterproofs were included.

The principal exports of rubber footwear in 1904 were as follows: To France, £27,727; Belgium £22,678; Austria-Hungary, £12,395; Hongkong, £48,525; Australia, £25,404; British East Indies, £10,552; Cape of Good Hope, £8770. In 1905: To France, £30,460; Belgium, £25,382; China, £16,215; Turkey, £12,020; Hongkong, £37,761; Australia, £27,389; British East Indies, £12,938; Cape of Good Hope, £12,946; Natal, £10,402.

The quantity of rubber footwear exported was as follows in dozen pairs:

	1904.	1905.
British manufacture	172,822	197,811
Foreign manufacture.....	39,501	9,966
Total	212,323	207,777

Imports of rubber footwear into the United Kingdom in the two years were as follows, in dozen pairs:

FROM —	1903.	1904.	1905.
United States.....	62,216	406,733	60,395
Germany	53,700	29,754	42,418
France	3,604	12,148	14,273
Belgium.....	3,726	9,772	12,807
Holland	7,354	4,537	837
Canada.....	4,748	13,083	10,692
Other countries.....	6	625	2,572
Total.....	135,354	176,652	143,994

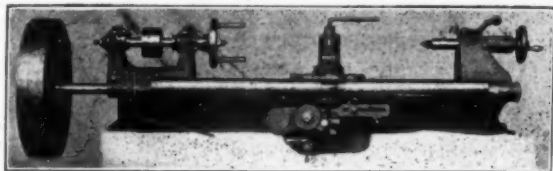
ARE TIRES BECOMING SMALLER?

NOTWITHSTANDING the improved method of manufacture and the increased sizes of tires now in common use, says *Automobile Topics*, it is safe to say that more cars are undertired now than ever before. In the modern cars the chassis is longer and heavier, every appliance is fitted and very heavy bodies are used yet the tires remain the same. Large tires cost more to purchase, but in the long run will be found just as economical as the smaller ones.

The same subject is referred to in *The Motor World*. It says: "One of the evils directly invited by the loosening of all restrictions on tires is showing its head even sooner than was anticipated. There are several automobile manufacturers bent on equipping their cars with tires with smaller diameters." This tendency was formerly the cause of much friction between the tire makers and the car builders, but in time it was relieved by an agreement as to the dimensions of tires for the vehicles of given weights. It is natural of course that automobile makers should wish to save the cost represented by the difference of an inch or a half inch in the diameter of a set of tires, and just as natural that tire makers should oppose the use of the smaller tires. *The Motor World* regrets to see this cause of friction being revived.

JAR RING CUTTING LATHE.

THE illustration shown herewith represents an automatic jar ring cutting lathe, which will cut rings for fruit jars and the like at the rate of about 125 per minute. This machine is entirely automatic in its work, it only being necessary for the attendant in charge to place the mandrel with the rubber on it in the machine and start the latter



running. It will cut in any diameter, provided the walls are not to exceed $\frac{3}{8}$ inch in thickness, varying in width from 12 to 24 to the inch. The only limit to the diameter of the rings is that the hole through the same must be so large that the mandrel will not spring when the knife enters the rubber. [John E. Thropp & Sons Co., Trenton, New Jersey.]

THE PISTON PACKING INDUSTRY.

SO various and widespread are the uses for packings nowadays that it may not always be realized that the original use for goods of this type was for steam pistons. The great desideratum in a piston is that it should admit of no leakage, and have as little friction as is consistent with this quality. Watt, the father of the steam engine as a practical device, tried to arrive at these results by the use of metallic packing, but with so little satisfaction that he gave it up. Then came packings into which vegetable and animal substances entered. Pistons were packed with unspun long



PISTON PACKING FACTORY OF W. D. ALLEN MANUFACTURING CO.

hemp, or soft rope, prepared for the purpose, kept supplied with melted tallow by means of a funnel over the cylinder lid.

The use of India-rubber and cotton fiber packing is of comparatively recent date. But, having engaged the ingenuity of some of the most ingenious inventors in rubber, and possessing decided merit, the increase in its use has been steady and rapid. Still what is known as flax packing yet retains a place of great importance in the trade.

The list of modern piston packings—not to mention any other—is practically illimitable, and their manufacture involves no end of mechanical devices, in addition to skill in compounding, in order that a packing specially adapted to any particular requirement may be produced. For example, special braiding machines have been made for enveloping rubber cores—round, square, or oval—with cotton or other fabrics; machines for braiding packings composed of flax throughout and lubricated with suitable materials, and so on. A concern with great experience in this field, and in connection with whose work a number of special machines have been developed, is the W. D. Allen Manufacturing Co. (Chicago). The illustration on this page gives a view of the interior of their piston packing factory, with a number of braiding machines in operation.

MACHINE FOR TEARING RUBBER WASTE.

THE Caoutchouc Separator Co., Hannover, Germany, have in operation a machine built on the lines of a recent patent granted to Herr Penther, which some German papers make a great deal of. A careful study of the claims, however, is surprising to one who is acquainted with rubber reclaiming on this side of the water. The machine in question tears rubber waste to pieces and by a current of air blows the fiber out of it, obtaining the product for so many years known as mechanically reclaimed rubber. It is perfectly possible that the machinery described may have some advantages in tearing the scrap to pieces more quickly, or may remove the finer fibers more completely, but that it can produce a better quality of mechanical reclaimed rubber is to be doubted. Anyhow, the general plan is as old as rubber reclaiming itself and the suggestion that the fiber after removal can be used for rubber mixings is not to be taken seriously.

ONE of the most important Bolivian rubber concessions has just been marketed in London, by American promoters, but details are not published.

RUBBER INTERESTS IN EUROPE.

GERMANY.

OUR Berlin correspondent, after a trip through a large part of the empire, writes to THE INDIA RUBBER WORLD that a market exists everywhere for American rubbers. "Every boot and shoe dealer," he writes, "should be supplied with, at least, two sample pairs of American rubbers, which it would pay the manufacturers to furnish gratis, as in nine cases out of ten orders would result. Whoever has once worn a good light American rubber, will always wear them if obtainable."

=The factory of the Internationale Galalith-Gesellschaft Hoff & Co. (Harburg a/d Elbe) is mentioned as having more than 100 employes. Galalith has recently been the subject of a decision by the United States customs authorities, who classify it with "unenumerated manufactured articles," the duty on which is 10 per cent. *ad valorem*.

GREAT BRITAIN

THE Dermatine Co., Limited, is a new company registered in London to acquire and carry on the business of the old company of the same name, in existence since 1889, and only lately wound up. The new company is capitalized at £35,000, of which £10,000 is in 7 per cent. cumulative shares.

=It cannot be sufficiently well recognized, says London *Financial News*, that in supporting the Continental Tyre and Rubber Co. motorists are really supporting a home industry, with nothing foreign about the factory but the name. The company have lately opened extensive new works at Willesden, and every tire constructed there is made by the most skilful workmen, under the supervision of experts.

=The trustees under the will of James Dick, of Glasgow, who died in 1902, leaving large bequests to charity, have been proceeded against at law by some of the next of kin who seek to inherit. It appears that the interest of the estate in the Gutta-percha factory of R. & J. Dick is now £296,930 [= \$1,445,110], and the trust assets held by the trustees at present amount to £607,114 [= \$2,954,520].

NOTES OF THE TIRE TRADE.

THE Healy Leather Tire Co. (Nos. 88-90 Gold street, New York) have sent Mr. Frank W. Wood on an extended business trip to the Western states in the interest of their tire. This tire is particularly adapted to the hard usage incident to the West, and for long touring trips. Mr. Wood started from Chicago and will include among his points of call all important commercial centers as far as the Pacific coast.

=All the cars made by the New Amsterdam Motor Co. (New York) will be equipped with the Goodyear Tire and Rubber Co.'s "Quick Detachable" tires and rims. The motor company stated recently that one of their demonstrating cars had covered about 5000 miles with a set of the Goodyear tires, and they believed the tires to be good for 2000 miles more.

=Of the thirteen automobiles in the Glidden Cup contest that won perfect scores, nine were equipped with Goodrich tires. The distance covered was 1150 miles.

=The trade is informed that the house of Michelin et Cie. control all patents on the detachable rim which attracted so

much attention at the recent Grand Prix race. The Michelin Products Selling Co., Inc. (New York), as exclusive American representatives of Michelin, will handle these rims in the United States.

=The Milwaukee Rubber Works Co. (Cudahy, Wisconsin) have established a number of new agencies for the sale of the Fawkes airless automobile tire, which is their specialty.

=The M. & M. Manufacturing Co. (Akron, Ohio) are marketing a retreading outfit for use in connection with worn automobile tires.

=The Turner endless solid tires sold by the Hartford Rubber Works Co. are made in widths from 2½ to 8 inches, for from 28 to 60 inch wheels. The larger sizes are made in the "twin" form.

=Mr. Walter Hale, of New York city, arrived lately in Paris after a 1200 mile tour in Spain and France in an American motor car (a "Cleveland"). His tires were American too—Dunlops—and he had only three punctures, arriving in Paris on the same tires he started out with, although the roads were bad over most of the route.

=The California Newmastic Tire Co. (No. 1040 South Main street, Los Angeles, California) are reported to have filled more than 2000 pneumatic motor tires with their Newmastic filling, to protect tires against punctures.

=Maine Elastic Tire Filling Co., July 21, 1906, under Maine laws; capital, \$10,000. Incorporators: J. P. Dodge (president), E. G. Haggett, and C. W. Berry, all of Portland, Maine.

=Ajax Standard Rubber Co. (New York) offer their automobile tires under a guarantee that they will run 5000 miles, and against blow outs, blistering, and rim cutting within six months from purchase.

=June was the best month in the history of the Swinehart Clincher Tire and Rubber Co., according to the reports made by the officers of the company. The Swinehart clincher tire is taking well with the trade and the company are working their plant to full capacity to keep up with the increased demand for their product.

=The Diamond Rubber Co. and the Stein Double Cushion Tire Co. have received during the month large shipments of cores and molds from the Williams Foundry and Machine Co., who are making a strong bid for this branch of the trade in this section. The latter company also filled good orders for the Indianapolis Rubber Co., Morgan & Wright, and the International A. & V. Tire Co.

THE United States have created a consulate general in the Congo Free State, as a means to keeping the Washington government better informed in regard to affairs in that country. The first incumbent of the office is Clarence Rice Slocum, of New York, recently consul at Saxe-Weimar, Germany.

RUBBER was expected to figure prominently at the third joint annual Agri-Horticultural Show of the Straits Settlements and Federated Malay States, at Singapore, on August 16-18. Eight prizes were offered for exhibits of *Pará (Hevea)* and three for exhibits of "rambong" (*Ficus*). The list embraces prizes for agricultural produce generally, fruits and flowers, live stock, and the products of a number of native industries.

NEWS OF THE AMERICAN RUBBER TRADE.

MORGAN & WRIGHT FACTORY READY.

THE new million dollar plant of Morgan & Wright, at Detroit, Michigan, was formally transferred to the company on August 3, by the constructors. The event was the occasion of a visit to Detroit of Charles H. Dale, president, and several other officials of the Rubber Goods Manufacturing Co., with which the Morgan & Wright company are affiliated. The factory was described and illustrated in THE INDIA RUBBER WORLD May 1, 1906 (page 259). The work of construction was begun in June of last year. Fires were first lighted in the boilers on Washington's birthday. The operation of the factory was begun on a small scale about the first of June, increasing gradually until, at the time of the formal transfer, the removal from the Chicago plant had been about half completed. The removal will be completed shortly, when 1200 employes will be at work in the new factory.

VACATION TIME.

THE Goodrich Rubber Man's Vacation has come again, (from The B. F. Goodrich Co., Akron, Ohio) and the "mid-summer hallucination" is all that the most daring flight of fancy could conceive. The peaceful scenes of camp life are invaded by alligators who, for the time, take up the habits as well as the haunts of humans. Fishing rods, swings, books, umbrellas, lunches and liquid refreshments are appropriated, as the rubber men look on aghast. However, those who "draw" a vacation picture are assured that "the order book is real." But it is only the uninitiated that need such assurance.

WHERE THE GRANT PATENT IS VALID.

AGAIN a decision has been rendered, bearing upon the validity of the solid tire patent issued to A. W. Grant—No. 554,675, of February 18, 1896. The decision is written by Judge Platt, in the United States circuit court for the southern district of New York, at Brooklyn, in a patent suit in the usual form, brought by The Consolidated Rubber Tire Co., alleging infringement by the Firestone Tire and Rubber Co.

Referring to previous decisions bearing upon this patent, the tenor of which has not been uniform, the present decision quotes from that of Judge Thomas, in the same court, in 1899. Judge Thomas, in sustaining the patent, was convinced that in a general way no tire prior to Grant really did what Grant's tire did; that it required Grant's specific combination of parts to accomplish his results; that therefore Grant did more than select and aggregate; he actually invented something.



SOLID TIRE.

[With inside retaining wires: made under the Grant patent]

Judge Thomas found, among other things, that the specific arrangement of channel and tire was such that the rubber tire when sharply compressed on either side had a tendency to rock, or tilt, in the channel iron, one wire acting as a pivot and the other as a retaining force, so that the tire would re-

seat itself. This he thought was functional and inherent in the device when made according to the specifications.

What follows is in the language of Judge Platt's late decision:

The circuit court of appeals, sixth circuit (at Cincinnati in 1902) found the turning point in the case to be at that point. They concede that if the old parts selected from old combinations perform a new function, or operate in a new way to produce a new and beneficial result, enough will have appeared to constitute invention. They say that the rocking and reseating idea is not expressed in the specifications, and that it is not necessarily present in the device made under them, because the retaining wires must not be so tight that the wire would break or the rubber be cut before the tilting and reseating could take place, and must be loose enough to permit the rubber to move slightly; but not so loose as to permit the rubber to fall out of the rim of its own accord. This tension would depend upon the whim of the workman. The specifications being silent as to this function and the proper tension of the wires to permit the function, it is not an inherent characteristic of the device as explained.

The following is a verbatim segment of the opinion:

"But if the retaining wires were tightened to their full tension when their ends were welded or otherwise united, this capacity to rise or yield to the excessive strain applied to the rubber is not known to exist."

The court practically admits that if the tilting movement had been mentioned or even if a direction could be found in the specifications that the wires should be applied at the proper tension, it would be enough; but taking the situation as they found it, they were convinced that the patent was "void for want of patentable novelty," and dismissed the bill.

In the suit at bar the complainants insist that they have settled by ample proof the question of the tipping capacity of the Grant tire. They claim to have shown beyond dispute that the rocking or tilting quality is inherent in the Grant construction, and that it cannot be destroyed by the tightness of the wires, but will be present and operative when the last extremity of tension prior to breaking, has been reached. They say that defendant's expert clearly concedes the actual existence of that mode of operation in the Grant patent which was the turning point in the sixth circuit appellate decision.

The court finds the patent in suit undoubtedly valid and gives a decree for the complainant.

TRADE NEWS NOTES.

THE New York office of The National India Rubber Co. (Bristol, Rhode Island) is now located at No. 42 Broadway. The company is represented there as to rubber insulated wires and cables by Henry D. Stanley and as to druggists' sundries, hose, packing, and clothing by Henry D. Archer.

—There was a fire recently in the coat making shop of the Goodyear's India Rubber Glove Manufacturing Co. (Naugatuck, Connecticut) which, it is believed, would have proved serious but for the excellent service rendered by the sprinkler system with which the plant is equipped.

—The Maine Rubber Shoe Co., at Portland, incorporated in 1904 to conduct a rubber footwear jobbing trade, have been succeeded by the Blake & Wheeler Shoe Co., composed of F. H. Blake and George D. Wheeler. The house will continue to make a specialty of "Hood" and "Old Colony" rubbers, besides adding leather shoes.

=The final meeting of the G & J Tire Association—the so called "tire pool," the dissolution of which has been mentioned before in THE INDIA RUBBER WORLD—was held in New York on August 7, when steps were taken to wind up its affairs. The date of the dissolution is September 1.

=DeVoll Tire Co., August 6, 1906, under New Jersey laws; authorized capital \$250,000. Incorporators: Charles H. DeVoll, No. 146 West Twenty-third street, New York; Henry S. Howland, Montclair, N. J., John J. Hallerman, Flushing, N. Y.

=The annual two weeks' shutdown of the Woonsocket Rubber Co. began on August 10. Meanwhile some of the arctic makers from the "Alice" mill of that company were employed on a hurry order for arctics at the Banigan rubber factory, at Olneyville, Rhode Island.

=The factories of the Goodyear's India Rubber Glove Manufacturing Co., at Naugatuck, Conn., resumed work on August 13, after the summer shutdown.

=The "Michelin Touring Card" issued by the Michelin Products Selling Co., Inc. (New York), over the signature of Manager E. D. Winans, introduces the bearer to Michelin agents wherever found—and they certainly are numerous—with a request that the courtesies of the agencies be extended to him. The cards, of course, are designed for users of Michelin tires.

=The annual picnic tendered by The Canadian Rubber Co. of Montreal, Limited, to its employes, on Saturday, July 7, was attended by 1600. Two steamers chartered for the occasion were lashed together and proceeded on the St. Lawrence abreast to Berthier, where the picnic was given. President Stephens and the leading members of the official staff attended and it was an enjoyable affair throughout.

=The Trenton Scrap Rubber Supply Co. (Trenton N. J.), reports business good. The firm is composed of H. Friedman and I. Pineburg. The warehouse of the company is at Nos. 49-51 Daymond street, South Trenton. It has been established but eight months, but is already shipping rubber scrap at a liberal rate.

=A change has been made in the official list of Aiton Machine Co., manufacturers of rubber factory machinery, New York and Harrison, N. J. Mr. Arthur S. Beves, formerly secretary of the company, becomes president, Mr. Thomas A. Aiton remains vice president, and Mr. John S. Showell has been elected secretary.

=The inventory and appraisal of the property of the Falcon Rubber Co. (New Haven, Connecticut), as filed by Receiver Sherman F. Foote, show that the assets of the company amount to \$35,551. The assets exceed the liabilities, and the receiver will sell the property and wind up the affairs of the concern.

=The Fisk Rubber Co. (Chicopee Falls, Massachusetts) continue to make additions to their tire factory. The latest is a two story building 50 x 125 feet, the first floor of which is to be used as a shipping room, and the second for additional offices and a buffet dining room for the use of the company's officers at luncheon.

=The Rubber-It material mentioned in the last INDIA RUBBER WORLD [page 372] as having been applied to belting, is also being used in steam hose, suction hose, air brake hose, garden hose, packings, and other mechanical rubber goods. The manufacturers are The McIlroy Belting and Hose Co., Nos. 19-21 South Canal street, Chicago.

=The sale is reported of two former rubber factory plants. That of the W. H. Conant Gossamer Rubber Co., at South Framingham, Massachusetts, was sold to W. H. Long, who probably will erect a leather shoe factory on the site. The other is that of the Conant Rubber Co., at the same place, a concern which went into the hands of receivers in the summer of 1905. The latter plant will be devoted to rubber reclaiming, by the Rickaby Rubber Manufacturing Co., headed by Frank B. Rickaby, formerly of Boston and more recently connected with the rubber trade at Akron, Ohio.

=Standard Rubber Co. (Trenton, New Jersey) have opened at Syracuse, New York, a branch supply house for mechanical rubber goods, with a specialty of mill and plumbers' supplies, to be conducted under the name Consolidated Supply Co. J. D. Brady is president; J. W. Teller, vice president; and John M. Wright secretary and treasurer. Mr. Brady will visit Syracuse weekly in the interest of the business.

=The regular quarterly dividend of $1\frac{3}{4}$ per cent. on the preferred shares of the Rubber Goods Manufacturing Co. was declared at a meeting of the directors held on August 1. It is payable September 15 to shareholders of record September 8.

=Mr. V. B. Lang, lately elected a vice president of the Hartford Rubber Works Co., has gone to Hartford to assume that post. During the past year he has been at Detroit, Michigan, in charge of the construction there of the new factory of Morgan & Wright.

=Rubberhide Co., No. 212 Essex street, Boston, are marketing rubber boots and shoes with leather soles made under patents owned by the company. Their factory is at Randolph, Mass. The rubbers they use are manufactured by the Goodyear's India Rubber Glove Manufacturing Co.

=The town of Glen Cove, Long Island, has been canvassed lately by W. L. Stauffel, some time interested in the rubber footwear manufacture at Setauket, with a view to securing capital for a \$250,000 rubber shoe factory in the former place.

=Grieb Rubber Co., Inc. (Philadelphia), notify the trade not to heed notices which have been sent out alleging an infringement by them of a patent on a rubber heel, containing cotton duck and fiber. The company state that they will protect their customers in the sale of their "Rival" heels.

=Sears, Roebuck & Co. (Chicago), reputed to be the largest firm in the world in the mail order trade, are reported to have placed with the United States Rubber Co. a single order for \$750,000 worth of rubber footwear. Sears, Roebuck & Co. are incorporated under the laws of New York, with \$40,000,000 capital authorized. Their sales in 1905 reached \$38,708,526.

=The Luzerne Rubber Co. (Trenton, New Jersey) have filed plans for an addition to their factory, to cost \$5000.

=The General Rubber Co. have declared a dividend, for the last business year, of 4 per cent., on their capital stock of \$3,000,000. The company is a purchasing concern, the shares of which are held by the United States Rubber Co. and the Rubber Goods Manufacturing Co.

=Cards are out for the wedding, on September 5, of Mr. James M. S. Carroll, of the Canadian Rubber Co. of Montreal, Limited, and Miss Mary Alberta Cameron, daughter of Mr. and Mrs. Allan Cameron, of Montreal, in the Church of St. James the Apostle.

=The Marvel Rubber Co. has been reorganized, and under the superintendency of Maurice C. Clark is manufacturing molded rubber shoes in one of the buildings of the National India Rubber Co. (Bristol, Rhode Island). Mr. Clark has been experimenting for nearly a year with the details of placing the cloth lining in the shoes when they are molded, and in getting out samples, and the company is now producing such shoes in several styles, including lumbermen's.

=The Dyson Rubber Co. plant, at Trenton, New Jersey, has been purchased by Philip McGrory, of that city, who is equipping it with additional machinery, with a view, it is understood, to selling or leasing the mill. There is a brick building 40 x 160 feet, on a lot 100 x 180 feet.

=International Rubber Co., selling agent for International A. & V. Tire Co. (Milltown, New Jersey), have increased their capital stock from \$100,000 to \$200,000 and filed a certificate to that effect with the secretary of state at Trenton, N. J.

=From the Globe Rubber Works (Boston) an attractive desk calendar is being distributed among friends and patrons. The background is of crystalloid, the corners being tipped with silver, while the perpetual calendar which is placed just below the firm's advertisement, is also framed in silver. It is neat, novel, and convenient.

=The Kansas Rubber Co. (Olathe, Kansas), it is reported, will engage extensively in heavy tire repairs, but will not for the present make tires.

MR. KEARNS'S VISIT TO THE STATES.

MR. JOHN KEARNS, of Chicopee Falls, Massachusetts, who for six years past has been at Melbourne as factory superintendent of the Dunlop Pneumatic Tyre Co. of Australia, Limited, visited his home during the month in consequence of the recent death of his son Killiam in an athletic contest in which he represented the Chicopee high school. Mr. Kearns returned to Australia by way of Europe. The Melbourne factory, by the way, has proved very successful, now employing 1400 hands. Last year 200,000 pairs of tires were made, and 250,000 inner tubes. The company manufacture all kinds of mechanical goods and also waterproof clothing. An important business is done in diving outfits for use in the pearl fisheries.

ASSIGNMENT OF THE THERMALITE CO.

THE Thermalite Co., manufacturers of self heating water bags, at No. 161 Lafayette street, New York, made an assignment on August 22 to Leslie J. Tompkins. The company was incorporated on February 28, 1905, with a capital stock of \$50,000, which was increased to \$100,000 in January, 1906, when the company was reorganized with Burton L. Bolton, of Coldwater, Mich., as president and Charles H. Dickinson, also of Coldwater, as treasurer. Albert S. Oglesby, attorney for the company, said that it had not been making any money, some of the creditors threatened suit, and the assignment was decided upon so that all creditors could be protected alike. The company had lost \$2000 or \$3000 worth of goods in the San Francisco fire, on which there was no insurance. The liabilities are \$15,000, and nominal assets \$10,000, not including patents, the value of which are not known. The company was formed to acquire the American rights under patents held by the Deutsche Thermaphor-Aktiengesellschaft, and is understood not to have completed payment for the same. The product was described in THE INDIA RUBBER WORLD, June 1, 1905 (page 305).

OUTING OF TYER RUBBER CO.'S EMPLOYEES.

THE annual outing of the employees of Tyer Rubber Co. (Andover, Massachusetts) was held on Saturday, August 4. About 400 took advantage of the low rates and special electric cars provided, to spend a day at Revere beach and take in the wonders of "Wonderland." The five special cars left at 7.30 A. M., filled with people and enthusiasm; and from then until the return at midnight, the day was one of continuous pleasure. The arrangements this year were again in the hands of the same efficient committee, consisting of Andrew McTiernan, Frederick Hulme, and E. R. Barton, and it was the unanimous opinion that the 1906 outing was a success.

PERSONAL MENTION.

THE American committee formed to take part in the celebration of the Perkin Jubilee—the fiftieth anniversary of the epoch making discovery by William Henry Perkin of the dyestuff "mauve" by which the foundation was laid for the coal tar industry and a great stimulus given to the study of chemistry—embraces the names of Maximilian Toch, LL.B., of Toch Brothers, manufacturing chemists, and Durand Woodman, PH. D., analytical chemist both of New York city and both widely known to the rubber trade.

=Mr. Low Gek Sing, of Singapore and Bangkok, whose visit to the United States was mentioned in our May 1 issue, sends greetings to the INDIA RUBBER WORLD from Yokohama.

=One of the legatees of Christopher Meyer, the wealthy rubber manufacturer who died in 1888, was a granddaughter, Helen Rowena, only child of Howard S. Meyer, deceased. The will directed that \$100,000 be invested for her benefit until she should reach the age of 21, her mother being named as trustee. The trust was closed recently, with the approval of the orphans' court at New Brunswick, New Jersey, when there was due Miss Meyer \$203,823.19.

=Mr. Charles C. Goodrich, assistant general superintendent of The B. F. Goodrich Co., has been elected as a trustee, to serve three years, of Buchtel College, at Akron, one of the foremost institutions of learning in Ohio.

NEW INCORPORATIONS.

BERNARD Manufacturing Co., June 11, 1906, under New York laws; capital, \$50,000. To make and deal in heat storing and retaining bags of rubber, to be used instead of hot water bags. Henry R. Bernard, president; M. A. Bernard, secretary; William McCory, vice president. Office: No. 69 Murray street, New York.

=Leon Mann Co., July 19, 1906, under New York laws, capital authorized, \$200,000. To make and sell rain coats, clothing, and wearing apparel. Leon Mann, president; M. Koppelman, vice president; Albert Rosenthal, secretary. Office: No. 699 Broadway, New York. To acquire and continue the business of the Mann Summer Clothing Co., Leon Mann proprietor, and the business of Leon Mann.

=The Goodyear Rubber Insulating Co., July 23, 1906, under New York laws; capital, \$100,000. To manufacture insulated wire and rubber goods. Incorporators: F. S. Minott, Mount Kisco, N. Y.; T. W. Blake, New Haven, Conn.; W. A. Minott, New York city.

=Michelin Tire Repair Works, July 13, 1906, under New Jersey laws; capital, \$10,000. Incorporators: Robert L. Eaton, Albert J. de Raimes, Elizabeth Wolfskeil, and Henry F. Wolfskeil, all of Elizabeth, N. J.

THE RUBBER TRADE AT AKRON.

BY A RESIDENT CORRESPONDENT.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Within the next month or six weeks the Faultless Rubber Co. will merge its two plants, the one located in Akron and the other located in Ashland, into one big plant. For some time past the merger plan has been under way but the officers of the company are undecided where to locate. Both Akron and Ashland are under consideration. A site for a large tract of land in the vicinity of the Goodyear Tire and Rubber company's plant in East Akron has been selected and an option has been taken on the property. Ashland has also offered the company a site for its plant if it will remove to that city. Some time ago the site upon which the company's plant in Akron now stands was optioned to a railroad company and on this account the company is seeking to make the move, not knowing when the land will be purchased by the railroad company and it will be forced to vacate the premises. Ashland is anxious to retain the plant. The stumbling block, however, in effecting the combination involves two propositions. The first is that the company has the bulk of the heavy machinery which was installed at a cost of several thousand dollars recently, in the Ashland plant, while the solution of the labor question is in Akron. The company since operating its Ashland plant has experienced difficulty in securing the required amount of help there. The past year has been one of the best, if not the best, this company has enjoyed since its organization.

Mr. Edwin C. Shaw, general superintendent of The B. F. Goodrich Co., has returned from an auto tour of the New England states, on which he had been absent since the first of April.

The Mechanical Rubber Co., of Cleveland, was made a defendant in the suit filed in Summit county by Ohio C. Barber, the match king, against the C. Aultman Co., of Canton, Ohio. In this action Mr. Barber seeks an accounting for himself and other creditors of the company of about \$20,000, which is represented in stock of the Whitman & Barnes Manufacturing Co., held by the Aultman company before it became defunct. The Mechanical Rubber Co. are interested in the litigation and filed a motion in the courts to be made a party defendant to the suit.

The Republic Rubber Co., of Youngstown, is enjoying some of the prosperity resulting from the large orders placed by the railroad companies for new cars and equipment. A report from this plant is to the effect that large orders for air brakes, steam hose, and mechanical rubber goods have been received.

The Mechanical Rubber Co., of Cleveland, is represented by one of the strongest amateur base ball teams in the state. The employes of the company comprising the team have received liberal support during the season from the management.

The annual picnic of employes of The B. F. Goodrich Co., the Alkali Rubber Co., and the American Hard Rubber Co., at Silver Lake, on August 3, was attended by more than 10,000 employes, their families, and friends. The three companies supplied all their employes with tickets for themselves and their families for car fare, admission, dancing, boat riding, and all the other amusements afforded. A fine

program of sports was given during the day. One interesting feature was a guessing match over the exact number of words written on a postal card.

Experiments are being made by several of the large factories in Akron looking toward the perfection of a hard rubber tile. The past several months have witnessed the fact that rubber tiling is fast growing in favor for different uses. This has caused the local enterprising concerns to prepare and bid for their share of the output and place upon the market some new ideas in rubber tiling. As a result two plants promise within a short time to put on the market a tile which they believe will surpass the present product. The adoption of the rubber tile for equipping steam coaches on railway trains will according to local manufacturers bring rubber tiling into a greatly increased use throughout the United States.

The eighth annual picnic of the Cleveland Rubber Co. was held at Silver Lake Park, near Akron, on August 8. Over 2000 employes and their families attended. The company furnished the amusements offered at the park free of charge.

James A. Swinehart, president of the Swinehart Clincher Tire and Rubber Co., and inventor of the now famous side wire system of fastening on rubber tires, has patented two new tires—one for a solid rubber tire and another for a pneumatic tire. The Swinehart Clincher Tire and Rubber Co. will manufacture both new patents in connection with their clincher tire.

The annual meeting of the officials, branch managers, salesmen, and heads of departments of the Firestone Tire and Rubber Co. was held at the office of the company on August 17-18. At noon on the first day luncheon was served at the plant by the company. Another session was held in the afternoon and in the evening all of the managers and salesmen were taken to the Portage Country Club, where dinner was served them, after which they were entertained at Lakeside Park Casino. Covers were laid for 30, and H. S. Firestone, president of the company, acted as toastmaster, and proved a genial host. The past year has been very successful with the company, showing increased sales in all departments, and the prospects for the coming year are bright.

L. A. Allwine and L. C. Warden, of Lorain, Ohio, have been granted a patent on a new vehicle wheel originated and designed by Mr. Allwine. The wheel is intended especially for automobiles and is expected to do away with the pneumatic tire. On the contrary the tire is to be of solid rubber while the wheel is fitted with a non circular pneumatic hub. This hub acts as a cushion, effectively doing away with the jar and producing virtually the same effect as a pneumatic tire. The hub according to the patent can be of any shape other than circular. In the drawings made by the inventor the hub is to be elliptical in shape.

G. A. Shaw, of Akron, has applied for a patent on a new non puncturable automobile tire which if proves successful promises to greatly decrease the cost of repairs. The new tire is equipped with an inverted rubber casing and rubber inner tube. For the tread of the tire a steel rim is fastened to the outer casing by means of the clincher system. The new tire makes the inner tube easy of access for repair and for substituting new ones. The steel tread, it is claimed, will increase the life of the tire nearly 100 per cent., while the cost will be about the same as the present automobile tire.

THE PACIFIC COAST RUBBER TRADE.

BY A RESIDENT CORRESPONDENT.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The various rubber houses that were located in San Francisco at the time of the great fire, have almost without an exception started in business again either here, or across the bay at Oakland. Those firms that were fortunate enough to have branch houses in other Coast cities, suffered but little loss of business as all orders were able to be filled, and stocks generally were large enough to meet immediate demands. The firms that had to get all their supplies from the East were really out of business for some time as freight shipments were so slow, and even now there is difficulty in getting supplies here on time, some goods that would ordinarily have been received by July 1, just now coming in. The demand for rubber goods of all descriptions is very heavy, owing to the many new enterprises starting up calling for this class of goods, as well as the rapidly growing country trade. The houses that have started in business again in San Francisco are carrying just as light stocks as they can and still supply customers, as the buildings they are now compelled to occupy are as a rule temporary affairs.

* * *

THE Diamond Rubber Co., now located at No. 110 Telegraph avenue, Oakland, has one of the finest stores of any of the firms that were burned out at San Francisco. They have a large building in the center of the business part of the city. While it is the intention of the firm to return to San Francisco, it does not expect to move until permanent quarters can be secured and the present heavy expenses of operating a store there are lessened. C. E. Mathewson, the manager of the Diamond company's interests here, has left for the East to visit the home office, accompanied by F. O. Nelson and Donald McKay of the same company, and it will be several weeks before they return. Mr. Albright has just returned from a business trip to Tonopah and the new mining camps in Nevada, where he landed good orders for tires and had a chance to see the rough usage to which articles of this class are subjected in that country. He states that the life of the ordinary automobile tire in the mining region is about one month, or about 2000 miles, and considering the nature of the roads he considers this excellent service. The most of the travel is done after nightfall as the heat in the desert is intense, reaching from 120 to 130 degrees in the shade. The effect of this heat on automobile tires can be imagined, and as very often no attempt is made to follow the roads, but the machine is driven over the rocks and sage brush, it is little wonder that tires are not longer lived. Time is the chief consideration there instead of money, and when a tire is blown up or badly punctured, no attempt is made to repair it but a new one is put in place. The road between Tonopah and Goldfields is strewn with these, an interesting comparison with the grewsome bones that lined the roads to the old mining camps. The garages in Tonopah are said to compare favorably in size with those of any of the large cities and large stocks of rubber tires are carried.

* * *

THE Plant Rubber and Supply Co. are now comfortably housed at No. 32 California street, and while no attempt is being made to keep a large stock on hand, a very complete line of the specialties they handle is being carried. At the

present time they are carrying only manufactured products and all orders for mold work are turned over to other firms. It is not likely that the factory will be established here again, in fact a location across the bay is now being sought. Mr. Plant has just returned from a trip to the East and now has the firm business under his personal supervision. H. M. Groszmeyer, who was formerly a salesman for this firm, is now acting in the capacity of city salesman, taking the place of R. J. Hammond, who has gone into the shipping business.

* * *

THE Goodyear Rubber Co. now has a factory in operation at Nos. 218-220 Spear street, and the office is also located there temporarily. Mr. Richard H. Pease, the manager of the firm's Pacific coast interests, states that a temporary building is now being erected at Nos. 573-579 Market street, where it has been located for the past 35 years, and that after Sept. 1st, the offices and sales room will be there. Here the same complete stock of rubber goods will be carried as formerly, including the products of the United States Rubber Co., the Wales-Goodyear company, and the Woonsocket Rubber Co. Since the fire the firm's California trade has been handled through the Portland store and the business has not suffered any interruption.

* * *

THE Gorham Rubber Co. now has its business moving as steadily as before the fire and is able to fill all orders from the San Francisco and Oakland stores. The factory is now in running order at No. 105 Fremont street, San Francisco, and a stock is carried there sufficient to supply the city trade. At Fourth and Washington streets Oakland, is the main store of this company, and two warehouses are also located in that city. In San Francisco a five story building is being erected on Mission street, near the old location, and as the work is now well under way it is expected that it will be ready for occupancy by January. Mr. Parish, of this company, states that business is now heavier than ever, orders for the first six months of the present year being fully 20 per cent. greater than for the corresponding period last year. The foreign trade is also heavy and it is asserted that San Francisco houses are now receiving orders that would have gone elsewhere before the fire, showing the kindnesses that are being showered upon her from every quarter of the globe.

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THE Pacific Coast Rubber Co. has done quite a bit of moving since the fire, but announces that it is now permanently settled at Nos. 138-140 First street, around the corner from the old location. The large building erected at No. 11 Hawthorne street will be utilized as a warehouse and is now well stocked with the lines of rubber goods that this firm carries. Mr. H. C. Norton, manager of the San Francisco store, has just returned from a short visit to the Portland store, and reports that a great business is being done there as well as here. Owing to the condition of the streets in San Francisco he thinks that there will be a very heavy local demand for rubber boots and shoes.

* * *

ALTHOUGH Barton, Squires, Byrne, Inc. have been in business only about eight months, they are now doing a very large business and are more than satisfied with results. After the fire they secured offices in the Ferry Postoffice building, and later moved to No. 27 Commercial street

where they have a good sized store. A factory 50×80 feet has been erected at No. 588 Hampshire street and is now in operation working on ring packing especially. Mr. W. P. Squires is an expert on this class of goods, having introduced the Garlock goods on the Coast, and having been with the Pacific Coast Rubber Co. for several years. The factory is most complete and the only wirewinding machine on the Coast has just been installed.

* * *

THE New York Belting and Packing Co., Limited, are still located at No. 918 Broadway, Oakland, but intend to return to San Francisco as soon as a suitable location can be secured.

The Graton & Knight Manufacturing Co. are now located at No. 2806 Mission street, San Francisco, and will probably remain there for the winter.

MEETING OF THE FIRESTONE COMPANY.

THE annual stockholders' meeting of the Firestone Tire and Rubber Co. was held at the company's general offices in Akron, Ohio, on August 15. The annual statement showed a large increase in volume of business for the last fiscal year, during which period the plant capacity has been tripled and several new branches established. The financial report was a very satisfactory one to the stockholders and the year's outlook shown to be flattering. The following directors were reelected: H. S. Firestone, Will Christy, A. C. Miller, R. J. Firestone, and L. E. Sisler. The Directors met and reelected the following officers:

President and General Manager—H. S. FIRESTONE.
Vice President—WILL CHRISTY.
Secretary—S. G. CARKHUFF.
Treasurer—L. E. SISLER.



MEMBERS OF THE FIRESTONE CONVENTION.

The annual Firestone convention of branch managers and salesmen held an enthusiastic session on August 18. The Firestone company is an enterprise owned and conducted by men under middle life and it is learned from those in position to know, that there is not a "stick of dead timber" on the payroll. As to what action was taken at the convention the officials were averse to making any definite statement. It can be stated, however, that there will be some news of interest to tire users in the near future.

STOUGHTON RUBBER CO.

THE board of trustees of the Stoughton Rubber Co. (Stoughton, Mass.) has been increased from five to seven members, and at present consists of the following: Ira F. Burnham (president and general manager), Charles A. Hunter (vice president), Ellsworth H. Hicks (vice president and assistant manager—clothing department), Thomas J. Skinner (secretary and treasurer), Lester Leland, John J. Watson, Jr., Homer E. Sawyer. The company are making additions to the factory buildings with a view to largely increasing their capacity.

NEW YORK STOCK EXCHANGE TRANSACTIONS.

UNITED States Rubber Co.:

DATES.	Common.			Preferred.		
	Sales.	High.	Low.	Sales.	High.	Low.
Week ending July 21	6,450	42	39½	1,000	107½	105½
Week ending July 28	5,065	44¼	42½	800	106½	106½
Week ending Aug. 4	5,315	46	43½	1,300	109	106¾
Week ending Aug. 11	2,100	45	44	450	107½	107
Week ending Aug. 18	2,890	46	44½	1,000	108¾	108
Week ending Aug. 25	8,205	48¾	45¾	1,450	109¾	107

SECOND PREFERRED.

Week ending—July 21.	July 28.	Aug. 4.	Aug. 11.	Aug. 25.
Sales..... 25	—	1300	4 0	100
High..... 78	—	80¾	80½	79
Low..... 78	—	79¾	80¾	79

FARREL Foundry and Machine Co. announce the purchase of the drawings, patterns, and good will of the National Water Tube Boiler Co. (New Brunswick, N. J.) for the rubber machinery they formerly manufactured, as they are now going out of that line of business.

"THROUGH 'Frisco's Furnace'" is the title of an attractive and interesting brochure issued by Joseph Dixon Crucible Co. (Jersey City, New Jersey), in relation to the excellent manner in which buildings treated with Dixon's Silica-Graphite Paint withstood the test of earthquake and flames in the recent disaster which visited San Francisco. Some of the experiences related are really remarkable.

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REVIEW OF THE CRUDE RUBBER MARKET.

PRICES are on a somewhat higher level than one month ago, after having fallen a trifle in the earlier days of the month. An advance in quotations was constantly looked for by sellers, in view of the approach of the season for the fall activity in the industry, but consumers seemed inclined to wait to see if a further decline would not develop. It has been only within the past few days, however, that a firmer condition has prevailed. There has been no actual shortage of rubber in the market at any time in the month. In fact, there are not wanting members of the trade, on both sides of the Atlantic, who entertain the belief that the amount of available material is greater than is revealed in the official statistics. But this is something that can always be asserted without the risk of bringing out a convincing contradiction. The fact that receipts at Pará have been somewhat larger than usual since July 1, the beginning of the new crop year, has not been without its effect on prices.

The result of the last Antwerp sale, on August 4, when about 390 tons were offered, was very irregular. Some lots were sold at an advance on the estimations and others fell below, and at this writing it is difficult to figure out whether an advance or a decline was scored.

Following is a statement of prices of Pará grades, one year ago, one month ago, and on August 27—this date:

PARÁ.	September 1, '05.	August 1, '06.	August 27.
Islands, fine, new.....	125@126	118@119	119@120
Islands, fine, old.....	none here	none here	none here
Upriver, fine, new.....	128@129	123@124	124@125
Upriver, fine, old.....	131@132	124@125	126@127
Islands, coarse, new.....	70@71	64½@65	66½@67
Islands, coarse, old.....	none here	none here	none here
Upriver, coarse, new.....	90@91	90@91	91½@92
Upriver, coarse, old.....	none here	none here	none here
Caucho (Peruvian) sheet....	71@72	72@73	75@76
Caucho (Peruvian) ball....	84@85	86@87	90@91
Ceylon (Plantation) fine sheet.....	148@149		142@143

AFRICAN.		CENTRALS	
Sierra Leone, 1st qual. 102	@103	Esméralda, sausage. . .	88@89
Massai, red.....102	@103	Guayaquil, strip....	73@74
Benguella.....78	@79	Nicaragua, scrap.....	84@85
Cameroon ball.....76	@77	Panama, slab.....	63@64
Accra flake.....21½@22	@22	Mexican, scrap.....	88@89
Lopori ball, prime .114	@115	Mexican, slab.....	62@63
Lopori strip, prime .103	@104	Mangabeira, sheet.....	69@70
Madagascar, pinky..93	@94	Guayule.....	40@45
Ikelemba.....115	@116	EAST INDIAN.	
Soudan niggers.....95	@96	Assam.....	92@93
		Borneo.....	41@48

Rubber Scrap Prices.

NEW YORK quotations—prices paid by consumers for car-load lots in cents per pound—are somewhat lighter:

Old Rubber Boots and Shoes	Domestic.....	9	@9½
Do	Foreign.....	8½	@8¾
Pneumatic Bicycle Tires.....		7½	@7¾
Solid Rubber Wagon and Carriage Tires.....		8½	@8¾
White Trimmed Rubber.....		10½	@11
Heavy Black Rubber.....		5½	@5¾
Air Brake Hose.....		3½	@3¾
Fire and Large Hose.....		2½	@3
Garden Hose.....		2½	@2¾
Matting.....		1½	@1¾

Late Pará cables quote:

	Per Kilo		Per Kilo.
Islands, fine.....	5½30c	Upriver, fine.....	6½30c
Islands, coarse.....	2½40c	Upriver, coarse.....	4½20c
Exchange, 16½d.			

Last Manáos advices:

Upriver, fine.....	6½25c	Upriver, coarse.....	3½75c
Exchange, 16½d.			

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.		Fine and Medium.	Coarse.	Total.	Total.	Total.
		1906.	1905.	1904.	1906.	1905.
Stocks, June 30.....	tons	171	20	191	594	137
Arrivals, July.....		618	362	980	297	478
Aggregating.....		789	382	1171	891	615
Deliveries, July.....		649	375	1024	474	549
Stocks, July 31.....		140	7	147	417	66

PARÁ.		ENGLAND.	
		1906.	1905.
Stocks, June 30.....	tons	30	160
Arrivals, July.....		1300	1420
Aggregating.....		1330	1580
Deliveries, July.....		954	1340
Stocks, July 31.....		376	240

	1906.	1905.	1904.
World's visible supply, July 31.....	tons	1841	1741
Pará receipts, July 1 to July 31.....		1300	1420
Pará Receipts of Caucho, same dates.....		350	170
Afloat from Pará to United States, July 31.....		193	94
Afloat from Pará to Europe, July 31.....		335	600

Antwerp.

ANTWERP RUBBER STATISTICS FOR JULY.

DETAILS.	1906.	1905.	1904.	1903.	1902.
Stocks, July 31.....	618,834	582,986	689,515	487,999	681,670
Arrivals in July.....	328,799	449,085	639,157	315,406	592,836
Congo sorts.....	247,197	324,963	530,159	324,060	545,272
Other sorts.....	81,602	124,122	108,998	41,346	47,614
Aggregating.....	947,633	1,032,071	1,328,672	853,405	1,274,506
Sales in July.....	416,192	212,512	455,926	475,878	584,734
Stocks, July 31.....	531,441	819,559	872,746	377,527	689,772
Arrivals since Jan. 1.....	3,355,605	3,210,284	3,464,917	2,979,632	3,237,614
Congo sorts.....	2,560,838	2,536,036	2,847,591	2,649,192	3,001,476
Other sorts.....	794,767	674,248	617,326	330,440	236,168
Sales since Jan. 1.....	3,559,351	2,932,686	3,203,071	3,259,910	2,962,881

ANTWERP RUBBER ARRIVALS.

JULY 31.—By the *Philippeville*, from the Congo:

Bunge & Co ..(Société Generale Africaine)	kilos	121,000
Do		10,000
Do	(Société A B I R)	12,000
Do	(Chemins de fer Grand Lacs)	700
Do	(Comité Special Katanga)	5,300
Société Coloniale Anversoise.....	(Cie du Kasai)	102,000
Do		9,000
Do	(Süd Kamerun)	8,500
Do	(Lulonga)	1,200
Do	(Belge du Haut Congo)	5,000
Do		3,500
Cie. Commerciale des Colonies ..	La Haut Sangha)	5,000
Do	(Cie. de l'N Keme et l'N'Ken)	4,600
Do	(Commerciale & Coloniale de la Kadei	
	Sangha)	2,700
Société Générale de Commerce (Société "La Lo-	bay")	20,000

Comptoir Commercial Congolais	5,000
M. S. Cols	1,400
Société Equatoriale Congolaise (Société l'Ikel- .....emba)	1,800
L. & W. Van de Velde.....	5,000 323,700

Rubber Receipts at Manaos.

DURING June and twelve months of the crop season for three years [courtesy of Messrs. Scholtz & Co.] :

FROM -	JUNE.			JULY-JUNE.		
	1906.	1905.	1904.	1905-06.	1904-05.	1903-04.
Rio Purús-Acre ... tons	249	123	30	6970	6243	5913
Rio Madeira.....	145	106	40	2972	2978	2681
Rio Jurua.....	245	33	34	3988	3944	3678
Rio Javary - Iquitos....	21	26	54	2866	2618	2273
Rio Solimões.....	16	21	9	1056	903	837
Rio Negro.....	35	31	17	702	787	485
Total.....	714	340	184	18554	17473	15867
Cauchos.....	482	327	257	5099	4613	4057
Total.....	1196	667	441	23653	22086	19924

London.

RUBBER AUCTION.

AUGUST 3.—Market quiet but steady during the week and not much business done. Sales of fine hard spot at 5s. 2d.; forward at 5s. 2 1/4d. Medium grades, in quiet demand and not much sold. Manicoba: 212 bales offered and bought in. Madagascar: 275 packages offered and 11 sold; white waxy ball 3s. 9d. @ 3s. 9 1/4d.; mixed pinky and Majunga 3s. @ 3s. 3d. Tonquin: 4 packages sold at 3s. 5 1/2d.

Plantation Rubber.—At to day's auction about 3 1/2 tons Ceylon and about 8 tons Straits and Malay States offered and for the most part found buyers. Fine pale biscuits went as high as 5s. 9 1/4d. [= \$1.40 1/3] for Culloden estate; other good brands brought 5s. 8 3/4d. [= \$1.39 1/3], one case of Ceara bringing the latter price. Twenty cases Vallambrosa estate rolled sheets sold at 5s. 8 1/4d @ 5s. 8 1/2d [To days price for fine Para 5s. 2d = \$1.25 2/3.]

Paris.

The organization is announced of the Société Française des Caoutchoucs, with a capital of 1,250,000 francs [= \$241,250], at 23, rue Taitbout, Paris, and a branch office in Havre, for buying and selling on commission Colonial products, and especially India-rubber from the French colonies. M. Georges Raverat is president of the council of administration; M. E. Petit director; and M. P. Lantz sub director. The board includes M. Edouard Bunge, of the Antwerp house of Bunge & Co.

Balata from Venezuela.

A BRITISH consular report, on the resumption of normal trade relations in Venezuela, gives the following comparison of the exports of Balata from the port of Ciudad Bolivar in 1901 (before the political troubles) and 1905:

1901—1,164,778 kilos,	worth £167,574
1905—1,277,833 "	" 155,681

Lisbon Receipts of Rubber.

FROM July 1 to June 30 in each year; reported by Martin Weinstein & Co.:

	1902-03.	1903-04.	1904-05.	1905-06.
Benguella	843	1818	1885	1547
Loanda	1053	909	704	570
Thimbles	101	143	177	111
Other sorts	100	68	51	74
Total.....	2099	2938	2817	2302

Ceylon (Plantation) Rubber Exports, 1906.

DETAILS—BY WEEKS.

POUNDS.	POUNDS.
January 1 to May 21.....105,005	Total, 1906.....129,785
Week ending May 28... 2,626	Same dates, 1905.....45,438
Week ending June 4... 13,276	Same dates, 1904.....32,225
Week ending June 11... 5,942	Same dates, 1903.....22,533
Week ending June 18... 2,936	

DESTINATION.

Great Britain.....	89,170	Australia.....	1,272
United States.....	30,032	Belgium.....	247
Germany.....	8,817	France.....	247

[NOTE.—The figures for the United States relate to direct exports from Ceylon. Not a little Ceylon rubber is purchased for United States account at the London auctions; also plantation rubber from the Straits. The total imports at New York of such rubber during the first five months of 1906 amounted to 50 tons of fine and 20 tons of scrap.]

The Congo Rubber Movement.

EXPORTS of rubber from the Congo Free State for two years past are officially stated as follows:

	1904.	1905.
Total rubber exports.....kilos.	5,764,644	6,108,421
Product of the State.....	4,830,939	4,861,767

VALUES.

Total rubber exports.....francs.	51,881,796	54,975,789
Product of the State.....	43,478,451	43,755,903

Exports include rubber in transit through the Free State, from the French Congo and from neighboring German and Portuguese territory.

Bordeaux.

IMPORTATION of rubber by months for the first half of two years past:

	1905.	1906.
January	130,255	166,285
February.....	126,540	217,860
March.....	173,355	257,505
April.....	152,650	116,960
May.....	74,700	162,380
June.....	77,100	111,920
Total.....	734,600	1,032,910

Liverpool.

EDMUND SCHLÜTER & Co. report [July 31]:

THE surplus of production over consumption remains in spite of the larger July arrivals at Pará, and the trade will require full receipts during August-September-October to prevent advance in prices following a reduction of stock.

WORLD'S VISIBLE SUPPLY OF PARÁ, JULY 31.

	1906.	1905.	1904.	1903.	1902.
Tons.....	3110	2275	1665	2550	3334
Prices, hard fine 5/2 1/2	5/6 1/4	4/11 1/4	4/0 1/2	2/10 1/2	

LIVERPOOL STOCKS OF AFRICAN RUBBER, JULY 31.

1906	388	1903	371	1900	823
1905	371	1902	516	1899	479
1904	473	1901	728	1898	376

WILLIAM WRIGHT & Co. report [August 1]:

Fine Pará.—Fine Pará has been very quiet, and prices have only fluctuated fractionally; at the beginning of the month prices of hard fine declined to 5s. 1 1/2d., but have since recovered to 5s. 2 1/2., about the same as last month; Islands fine also declined to 5s., but the last sale made was 5s. 1 1/2d., with rather more inquiry. For delivery only a moderate business done, chiefly speculative, as most importers are adopting a very cautious policy in view of the strong statistical position of the market. America has been dull, which accounts in a large measure for the quietness of this market. On the other hand the Pará and Manáos markets have been firm and active at prices considerably above those ruling here. With moderate supplies for the next few months we should not be surprised to see an advance in rates.

IMPORTS FROM PARÁ AT NEW YORK.

[The Figures Indicate Weights in Pounds.]

July 24.—By the steamer *Camelense*, from Manáos and Pará:

IMPORTERS,	Fine.	Medium.	Coarse.	Cauchos.	Total.
General Rubber Co.	97,500	18,400	114,100	18,100	248,100
N. Y. Commercial Co.	55,700	14,400	27,500	38,400	136,000
A. T. Morse & Co.....	58,600	7,900	22,100	27,900	116,500
Poel & Arnold.....	31,900	5,000	36,800	42,400	116,100
C. P. dos Santos.....	30,200	7,300	11,200	500	49,200
Hagemeyer & Brunn... ..	16,100	1,000	5,100	1,300	23,500
Edmund Reeks & Co.	11,800	2,000	8,800		22,600
Total.....	301,800	56,000	225,600	128,600	712,000

August 3.—By the steamer *Benedict*, from Pará:

A. T. Morse & Co.	60,300	8,700	21,400	17,100	107,500
General Rubber Co.	16,100	2,300	65,000	1,900	85,300
Poel & Arnold	27,200	5,000	22,000	2,100	56,300
Neale & Co.	7,100	.....	36,600	.....	43,700
C. P. dos Santos	26,400	7,800	5,900	.....	40,100
N. Y. Commercial Co.	6,400	19,400	4,600	2,400	32,800
Hagemeyer & Brunn	21,000	1,700	16,300	.....	29,000
Edmund Reeks & Co.	5,600	1,200	13,900	.....	20,700

Total..... 170,100 46,100 175,700 23,500 415,400

August 15.—By the steamer *Maranhense*, from Manáos and Pará:

N. Y. Commercial Co.	188,600	27,300	27,800	2,500	246,200
Poel & Arnold	87,500	26,400	31,300	28,500	173,700
General Rubber Co.	61,600	12,500	86,500	.....	160,600
Edmund Reeks & Co.	20,600	2,300	19,200	.....	42,100
Hagemeyer & Brunn	18,100	700	15,700	.....	34,500
L. Johnson & Co.	15,400	3,400	6,300	.....	25,100
Neale & Co.	10,400	4,600	4,800	2,000	21,800
A. T. Morse & Co.	.....	3,300	15,800	.....	19,100

Total..... 405,200 80,500 207,400 33,000 726,100

PARA RUBBER VIA EUROPE.

JULY 30.—By the <i>Patricia</i> =Hamburg:	POUNDS.
Poel & Arnold (Coarse).....	7,000
JULY 21.—By the <i>Etruria</i> =Liverpool:	
New York Commercial Co (Fine).....	15,000
JULY 23.—By the <i>Cedric</i> =Liverpool:	
Poel & Arnold (Medium).....	22,500
Poel & Arnold (Coarse).....	13,500
JULY 25.—By the <i>Carmania</i> =Liverpool:	
New York Commercial Co. (Fine).....	11,000
JULY 26.—By the <i>Orin</i> =Colon:	
Boston & Bolivia Co. (Fine).....	5,000
JULY 27.—By the <i>Maraval</i> =Ciudad Bolívar:	
Thebaud Brothers (Fine).....	13,500
Thebaud Brothers (Coarse).....	4,000
G. Amsinck & Co. (Fine).....	6,000
AUG. 6.—By the <i>Grenada</i> =Ciudad Bolívar:	
Thebaud Brothers (Fine).....	46,000
Thebaud Brothers (Coarse).....	24,000
Middleton & Co. (Fine).....	18,000
Middleton & Co. (Coarse).....	2,000
G. Amsinck & Co. (Fine).....	3,000
AUG. 7.—By the <i>Bo</i> =Liverpool:	
Poel & Arnold (Coarse).....	10,000
AUG. 11.—By the <i>Bulgaria</i> =Hamburg:	
Poel & Arnold (Fine).....	16,000

OTHER ARRIVALS AT NEW YORK

CENTRALS.

JULY 23.—By the <i>Tennyson</i> =Bahia:	POUNDS.
Adolph Hirsch & Co.....	26,000
J. H. Rossback & Bros.....	25,000
American Commercial Co.....	14,500
Frank G. Alden & Co.....	7,000
Lawrence Johnson & Co.....	4,500
A. D. Hitch & Co.....	5,000
JULY 23.—By the <i>Proteus</i> =New Orleans:	
Manhattan Rubber Mfg. Co.....	1,500
Eggers & Heinlein.....	1,000
G. Amsinck & Co.....	1,000
A. S. Lascellas & Co.....	500
Bartling & De Leon.....	500
JULY 23.—By the <i>Alliance</i> =Colon:	
Feltman Estate.....	4,000
JULY 24.—By the <i>Venetia</i> =Colombia:	
D. A. DeLima & Co.....	1,000
Pedro A. Lopez.....	1,000
Sperling & Williams.....	1,000
Isaac Brandon & Bros.....	1,000
Wessels & Kulenkamp.....	500
Kunhardt & Co.....	500
Cadenas & Co.....	500
JULY 28.—By the <i>Seguanga</i> =Frontera:	
Harburger & Stack.....	9,000
E. Steiger & Co.....	7,500
H. Marquardt & Co.....	1,000
E. N. Tibbals Co.....	1,000
Graham, Hinkley & Co.....	500
JULY 31.—By the <i>Prinz Waldemar</i> =Colon:	
Feltman Estate.....	3,000
A. Santos & Co.....	1,500
Andreas & Co.....	1,500
J. P. Rodrigues.....	1,000
Isaac Brandon & Bros.....	1,000
Pedro A. Lopez.....	500
Mecke & Co.....	500
AUG. 2.—By the <i>El Siglo</i> =Galveston:	
Continental & Mexican.....	25,000
AUG. 3.—By the <i>Flandria</i> =Ceiba:	
A. Rosenthal Sons.....	3,000
Haller & Sohle.....	200
William Kohle.....	1,000
G. Amsinck & Co.....	1,000
AUG. 3.—By the <i>Monterey</i> =Mexico:	
Harburger & Stack.....	6,000
H. Marquardt & Co.....	3,000

CENTRALS—Continued.

E. Steiger & Co.....	1,000
E. N. Tibbals & Co.....	500
American Trading Co.....	500
JULY 26.—By the <i>Orinoco</i> =Colon:	
George A. Alden & Co.....	1,500
Mecke & Co.....	1,000
Escobar & Gorgorza.....	500
Aramburo Incepta.....	500
E. B. Strout.....	500
JULY 28.—By the <i>Matanzas</i> =Tampico:	
New York Commercial Co.....	45,000
Harburger & Stack.....	4,000
JULY 28.—By the <i>El Dorado</i> =New Orleans:	
A. T. Morse & Co.....	6,500
JULY 28.—By the <i>Financ</i> =Colon:	
Feltman Estate.....	9,200
Munn & Emdon.....	4,400
Lawrence Johnson & Co.....	3,600
G. Amsinck & Co.....	3,100
Dumarest Bros. & Co.....	2,200
Go-dan & Van Sickle.....	2,100
A. Santos & Co.....	1,500
American Trading Co.....	1,000
A. M. Capens Sons.....	800
Kunhardt & Co.....	500
AUG. 4.—By the <i>Itian</i> =Bahia:	
J. H. Rossback & Bros.....	20,000
American Commercial Co.....	15,000
Adolph Hirsch & Co.....	3,000
AUG. 6.—By the <i>Proteus</i> =New Orleans:	
A. T. Morse & Co.....	3,500
Manhattan Rubber Mfg Co.....	1,000
AUG. 6.—By the <i>Gutierrez</i> =La Plata:	
American Commercial Co.....	3,300
AUG. 7.—By the <i>Advance</i> =Colon:	
Feltman Estate.....	4,000
Munn & Emdon.....	1,000
Andean Trading Co.....	1,000
AUG. 7.—By the <i>El Alba</i> =Galveston:	
Continental & Mexican Co.....	30,000
AUG. 8.—By the <i>Colorado</i> =Mobile:	
A. T. Morse & Co.....	15,000
AUG. 8.—By the <i>Sarnia</i> =Colombia:	
Colombian Trading Co.....	2,000
Maitland Cappell Co.....	1,000
Kunhardt & Co.....	1,000
Isaac Brandon & Bros.....	500
AUG. 9.—By the <i>Carib II</i> =Ceiba:	
Eggers & Heinlein.....	5,000
H. W. Peabody & Co.....	1,500
AUG. 10.—By the <i>Meri</i> =Frontera:	
Harburger & Stack.....	3,500
Thebaud Brothers.....	3,000
Isaac Kubie & Co.....	4,000
Graham, Hinkley & Co.....	1,000
E. Steiger & Co.....	500
AUG. 10.—By the <i>Alene</i> =Bogata:	
D. A. De Lima & Co.....	2,000
Pedro A. Lopez.....	500
AUG. 11.—By the <i>Bayamo</i> =Tampico:	
For Canada.....	25,000
AUG. 11.—By the <i>Panama</i> =Colon:	
Feltman Estate.....	11,000
National Sewing Machine Co.....	1,500
Eggers & Heinlein.....	1,500
AUG. 11.—By the <i>El Valle</i> =Galveston:	
Continental & Mexican Co.....	30,000
New York Commercial Co.....	22,000
AUG. 11.—By the <i>St. Paul</i> =London:	
Poel & Arnold.....	33,000
AUG. 14.—By the <i>Alleghany</i> =Colombia:	
American Trading Co.....	1,000
Kunhardt & Co.....	1,000
Escobar & Gorgorza.....	600
A. He'd.....	600
Suzarte & Whitney.....	600

CENTRALS—Continued.

G. Amsinck & Co.....	600
Mecke & Co.....	500
AUG. 12.—By the <i>Tagus</i> =Caribbean:	
Seanz & Co.....	2,500
American Trading Co.....	2,000
Escobar & Gorgorza.....	1,000
Roldan & Van Sickle.....	500
AUG. 17.—By the <i>Alliance</i> =Colon:	
Feltman Estate.....	9,000
E. B. Strout.....	5,500
Lawrence Johnson & Co.....	4,000
G. Amsinck & Co.....	3,500
Dumarest Bros. & Co.....	3,000
Roldan Van Sickle.....	3,000
Aramburo Incepta.....	3,000
A. Santos & Co.....	2,000
Meyer Hecht.....	1,500
Wessels & Kulenkamp.....	1,500
W. R. Grace & Co.....	1,000
Isaac Brandon & Bros.....	500
AUG. 18.—By the <i>El Dorado</i> =New Orleans:	
A. T. Morse & Co.....	6,000
Manhattan Rub. Mfg. Co.....	3,000
AUG. 18.—By the <i>Esperanza</i> =Mexico:	
E. N. Tibbals Co.....	1,500
Fred'k. Probst & Co.....	1,000
Graham, Hinkley & Co.....	500
E. Steiger & Co.....	500
AUG. 18.—By the <i>El Siglo</i> =Galveston:	
Continental & Mexican Co.....	35,000
AUG. 20.—By the <i>Yucatan</i> =Tampico:	
Edward Maurer.....	45,000
New York Commercial Co.....	26,000
AUG. 20.—By the <i>Byron</i> =Bahia:	
A. D. Hitch & Co.....	24,000
J. H. Rossback & Bros.....	22,500
American Commercial Co.....	55,000
Thomsen & Co.....	1,500
AFRICANS.	POUNDS.
JULY 22.—By the <i>Cedric</i> =Liverpool:	
General Rubber Co.....	100,000
JULY 27.—By the <i>Baltic</i> =Liverpool:	
George A. Alden & Co.....	33,500
JULY 28.—By the <i>Pretoria</i> =Hamburg:	
Poel & Arnold.....	50,000
George A. Alden & Co.....	9,000
General Rubber Co.....	6,500
H. Amy & Co.....	3,000
JULY 28.—By the <i>Amerika</i> =Hamburg:	
A. T. Morse & Co.....	35,000
AUG. 1.—By the <i>Finland</i> =Antwerp:	
F. R. Muller & Co.....	15,000
AUG. 2.—By the <i>Walde</i> =Hamburg:	
General Rubber Co.....	9,000
A. T. Morse & Co.....	6,500
AUG. 4.—By the <i>Philadelphia</i> =London:	
Robinson & Stiles.....	7,000
A. W. Brunn & Co.....	2,500
AUG. 6.—By the <i>Celtic</i> =Liverpool:	
George A. Alden & Co.....	44,000
A. W. Brunn & Co.....	16,000
AUG. 6.—By the <i>Umbria</i> =Liverpool:	
George A. Alden & Co.....	16,000
Raw Products Co.....	9,000
AUG. 7.—By the <i>Bovic</i> =Liverpool:	
Poel & Arnold.....	15,000
General Rubber Co.....	90,000
AUG. 8.—By the <i>Caronia</i> =Liverpool:	
Poel & Arnold.....	22,500
Raw Products Co.....	15,000
George A. Alden & Co.....	11,500
AUG. 8.—By the <i>Oceanic</i> =Liverpool:	
Rubber Trading Co.....	22,000
A. T. Morse & Co.....	7,000

AFRICANS—Continued.

AUG. 11.—By the <i>Bulgaria</i> —Hamburg:	
Poel & Arnold	23,000
Rubber Trading Co.	10,000
	33,000
AUG. 13.—By the <i>La Bretagne</i> —Havre:	
Poel & Arnold	3,000
George A. Alden & Co.	3,000
	6,000
AUG. 13.—By the <i>Peninsular</i> —Lisbon:	
General Rubber Co.	65,000
AUG. 13.—By the <i>Kroonland</i> —Antwerp:	
George A. Alden & Co.	100,000
Poel & Arnold	135,000
A. T. Morse & Co.	33,000
Rubber Trading Co.	15,000
General Rubber Co.	25,000
	308,000
AUG. 16.—By the <i>Pretoria</i> —Hamburg:	
General Rubber Co.	15,000
George A. Alden & Co.	10,000
A. T. Morse & Co.	9,000
Poel & Arnold	6,500
	40,500
AUG. 20.—By the <i>Etruria</i> —Liverpool:	
George A. Alden & Co.	11,500
Raw Products Co.	5,500
Earle Brothers	4,500
Henry A. Gould Co.	2,500
	21,000
AUG. 20.—By the <i>La Touraine</i> —Havre:	
A. T. Morse & Co.	11,500

EAST INDIAN.

JULY 23.—By the <i>Seneca</i> —Singapore:	
George A. Alden & Co.	19,000
JULY 24.—By the <i>Minnehaha</i> —London:	
A. T. Morse & Co.	18,000
JULY 27.—By the <i>Wildenfels</i> —Colombo:	
A. T. Morse & Co.	3,500
JULY 30.—By the <i>Minnetonka</i> —London:	
A. T. Morse & Co.	5,500
Robinson & Stiles	4,500
	10,000
AUG. 11.—By the <i>Bulgaria</i> —Hamburg:	
George A. Alden & Co.	10,000
AUG. 11.—By the <i>St. Paul</i> —London:	
Poel & Arnold	17,000
George A. Alden & Co.	2,000
	19,000
AUG. 13.—By the <i>Ramsay</i> —Singapore:	
H. Raoult & Co.	33,000
Joseph Cantor	30,000
A. T. Morse & Co.	20,000
Poel & Arnold	10,000
F. R. Muller & Co.	13,000
	106,000

EAST INDIAN—Continued.

AUG. 13.—By the <i>Victorian</i> —Liverpool:	
Poel & Arnold	5,500
AUG. 15.—By the <i>Bucrania</i> —Colombo:	
George A. Alden & Co.	22,000
A. T. Morse & Co.	3,000
	25,000
AUG. 15.—By the <i>Satsuma</i> —Singapore:	
Poel & Arnold	30,000
Joseph Cantor	25,000
George A. Alden & Co.	25,000
A. T. Morse & Co.	15,000
Winter & Smillie	11,000
	106,000
AUG. 20.—By the <i>Minnehaha</i> —London:	
George A. Alden & Co.	11,500
GUTTA-JELUTONG.	
AUG. 13.—By the <i>Ramsay</i> —Singapore:	
A. W. Brunn & Co.	10,000
Heabler & Co.	55,000
F. R. Muller & Co.—African ..	25,000
	390,000
AUG. 16.—By the <i>Satsuma</i> —Singapore:	
Haebler & Co.	430,000
A. W. Brunn & Co.	260,000
Poel & Arnold	45,000
George A. Alden & Co.	275,000
Robinson & Stiles	155,000
F. R. Muller & Co.	10,000
Interior Points	65,000
	1,180,000

GUTTA-PERCHA AND BALATA.

JULY 28.—By the <i>Pretoria</i> —Hamburg:	
Robert Soltan Co.	7,000
JULY 28.—By the <i>St. Louis</i> —London:	
Kempshall Manufacturing Co.	2,500
AUG. 4.—By the <i>Philadelphia</i> —London:	
F. R. Muller Co.	11,000
AUG. 16.—By the <i>Pennsylvania</i> —Hamburg:	
Robert Soltan Co.	84,000
BALATA.	
JULY 27.—By the <i>Maravala</i> —Ciudad Bolivar:	
Thebaud Brothers	15,000
Middleton & Co.	3,500
	18,500
JULY 28.—By the <i>St. Louis</i> —London:	
F. R. Muller & Co.	8,000
JULY 30.—By the <i>Parima</i> —Demerara:	
George A. Alden & Co.	7,500
C. P. Shilstone	2,000
	9,500
AUG. 6.—By the <i>Grenada</i> —Ciudad Bolivar:	
Thebaud Brothers	22,500
AUG. 11.—By the <i>Prinz Mauritz</i> —Surinam:	
G. Amsinck & Co.	4,500

BALATA.—Continued.

AUG. 16.—By the <i>Manoa</i> —Demerara:	
George A. Alden & Co.	8,000

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—JULY.

Imports:	Pounds.	Value.
India-rubber	4,331,486	\$3 250,217
Gutta-percha	21,532	15,992
Gutta jelutong (Pontianak)	371,871	12,235
Total	4,724,889	\$3 287,464
Exports:		
India-rubber	95,631	\$ 86,233
Reclaimed rubber	63,743	8,430
Rubber scrap imported	1,478,889	\$ 107,979

BOSTON ARRIVALS.

	POUNDS.
JUNE 4.—By the <i>Arabic</i> —Liverpool:	
George A. Alden & Co.—African	1,700
JUNE 4.—By the <i>Laucastrian</i> —London:	
George A. Alden & Co.—East Indian ..	3,700
JUNE 4.—By the <i>Lake Michigan</i> —Hamburg:	
George A. Alden & Co.—African	55,200
JUNE 8.—By the <i>Ivernian</i> —Liverpool:	
Poel & Arnold—African	2,900
JUNE 12.—By the <i>Canadian</i> —Liverpool:	
Poel & Arnold—African	15,200
JUNE 19.—By the <i>Sylvania</i> —Liverpool:	
William Wright & Co.—Central	13,800
JUNE 19.—By the <i>Columbian</i> —London:	
George A. Alden & Co.—East Indian ..	2,600
JUNE 25.—By the <i>Sagamore</i> —Liverpool:	
Poel & Arnold—African	13,100
George A. Alden & Co.—African	5,200
	18,300
JUNE 27.—By the <i>Winifredian</i> —Liverpool:	
William Wright & Co.—Central	12,000
JUNE 28.—By the <i>Clan MacLellan</i> —Calcutta:	
George A. Alden & Co.—East Indian ..	7,000
JUNE 28.—By the <i>Indore</i> —Liverpool:	
William Wright & Co.—Central	33,500
JUNE 30.—By the <i>Cambrian</i> —London:	
George A. Alden & Co.—East Indian ..	1,700
Total	167,600

OFFICIAL STATISTICS OF CRUDE INDIA-RUBBER (IN POUNDS)

UNITED STATES.				GREAT BRITAIN.			
MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.	MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
June, 1906	3,894,420	244,099	3,650,321	June, 1906	4,681,712	2,822,848	1,858,864
January-May	29,598,470	1,539,549	28,058,921	January-May	29,796,032	15,913,632	13,882,400
Six months, 1906	33,492,890	1,783,648	31,709,242	Six months, 1906	34,477,744	18,736,480	15,741,264
Six months, 1905	39,834,796	1,574,000	38,260,796	Six months, 1905	32,678,688	18,032,680	14,646,008
Six months, 1904	34,401,123	1,760,986	32,730,137	Six months, 1904	30,909,872	17,549,062	13,360,810
GERMANY.				ITALY.			
MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.	MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
June, 1906	3,092,320	771,980	2,320,340	June, 1906	1,165,780	126,720	1,039,060
January-May	17,318,400	4,637,160	12,681,240	January-May			
Six months, 1906	20,410,720	5,409,140	15,001,580	Six months, 1906	854,700	118,580	736,120
Six months, 1905	22,835,120	7,363,840	15,471,280	Six months, 1905	841,720	52,140	789,580
Six months, 1904	18,294,760	5,233,580	13,061,180	Six months, 1904			
FRANCE.*							
MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.				
June, 1906	2,657,600	1,350,140	1,307,460				
January-May	15,100,140	7,161,660	7,938,480				
Six months, 1906	17,757,740	8,511,800	9,245,940				
Six months, 1905	14,586,000	7,923,520	6,662,480				
Six months, 1904	10,775,820	6,660,720	4,115,100				

NOTE.—German statistics before Jan. 1, 1906, include Gutta-percha, Balata, old (waste) rubber. British figures include old rubber. French, Austrian, and Italian figures include Gutta-percha. The exports from the United States embrace the supplies for Canadian consumption.

* General Commerce.

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BOSTON OFFICE: 161 SUMMER STREET

TELEPHONE: 1599-2 OXFORD

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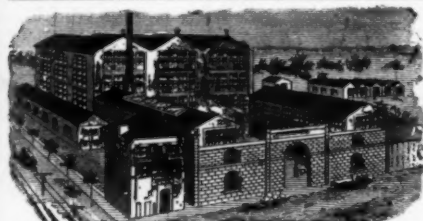
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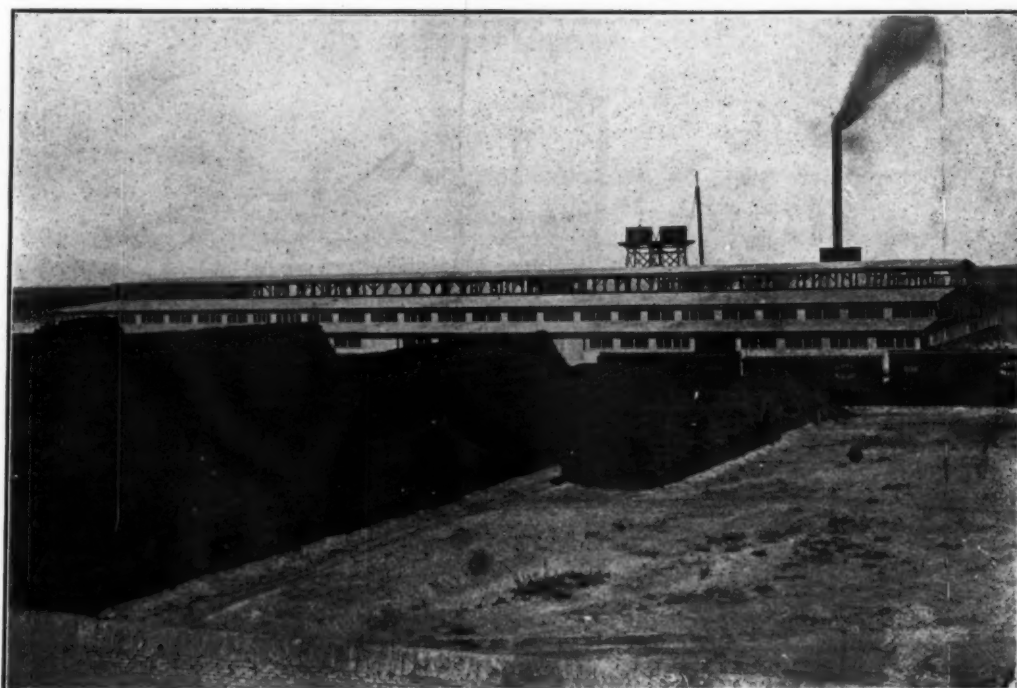
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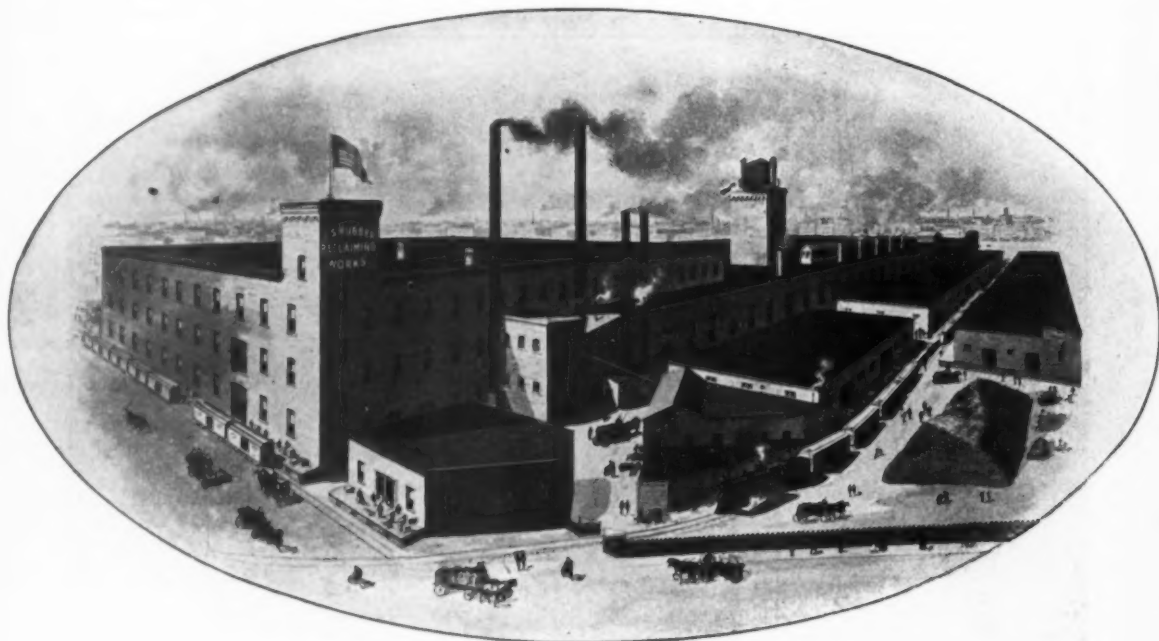
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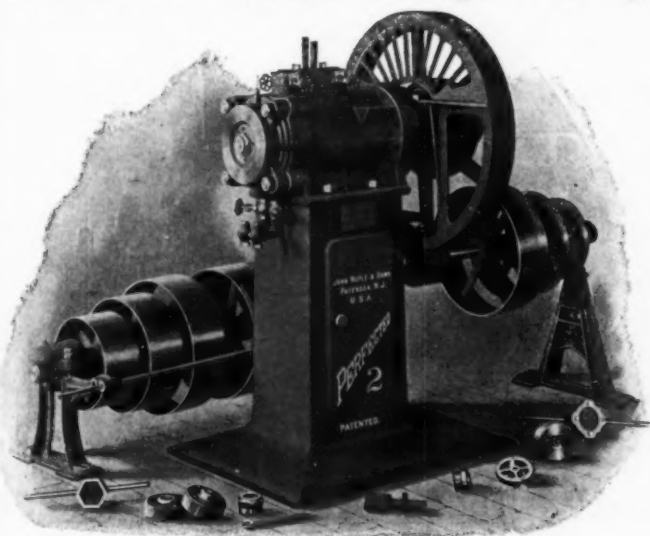
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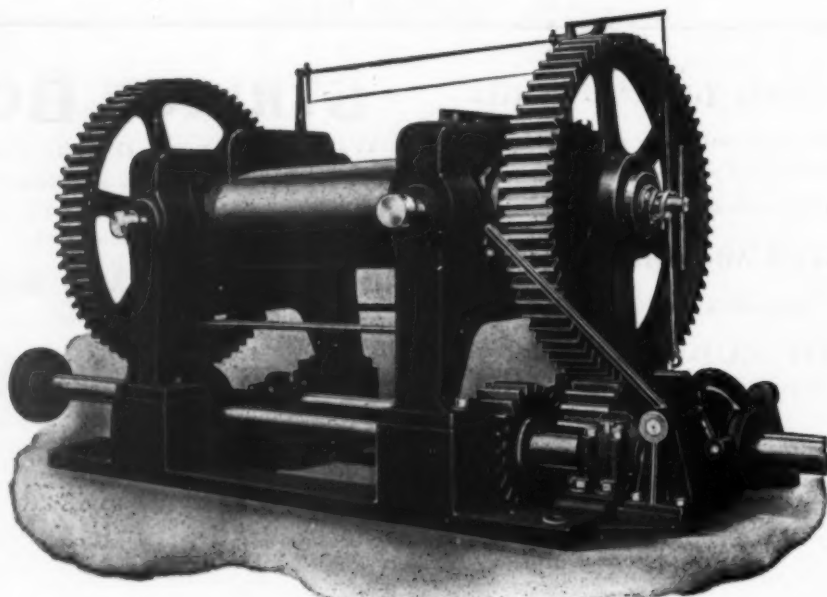
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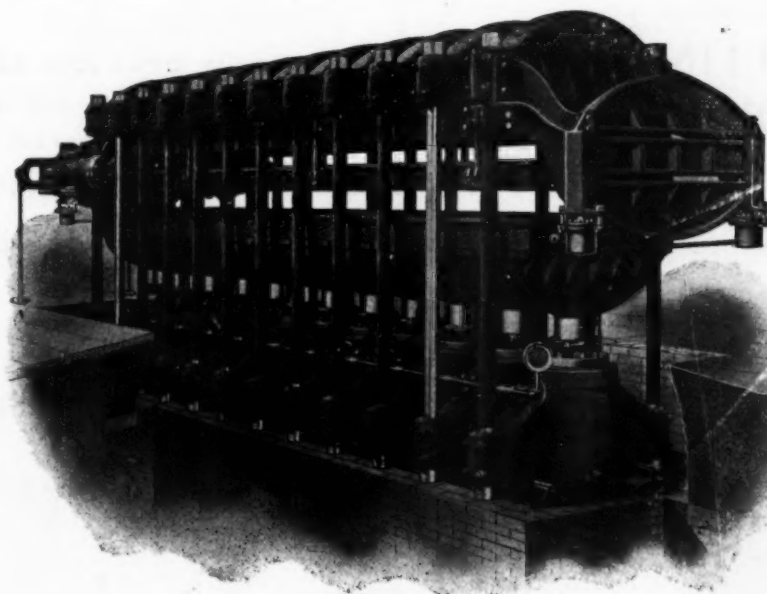
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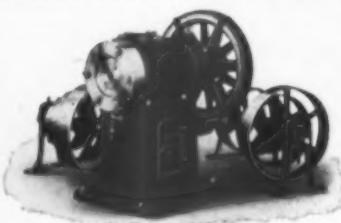
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a Specialty of Dies For Cutting Rubber.

We guarantee satisfaction in PRICE, SERVICE and QUALITY.

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Does this Appeal
to You?
Heavy Duty, 6 in.
Tubing Machine.

Presses, Tubing
Machines and
Molds of all kinds.

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For Artificial Leather, Table Oil Cloth,
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I MAKE NOTHING BUT MOULDS

SEND SPECIFICATIONS
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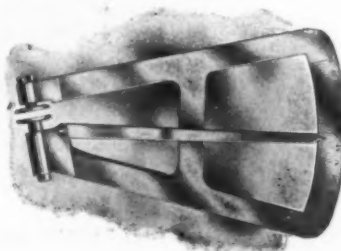
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GAUGES FOR MEASURING SHEET RUBBER.

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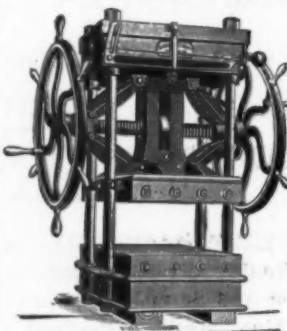
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SYRACUSE, N. Y.



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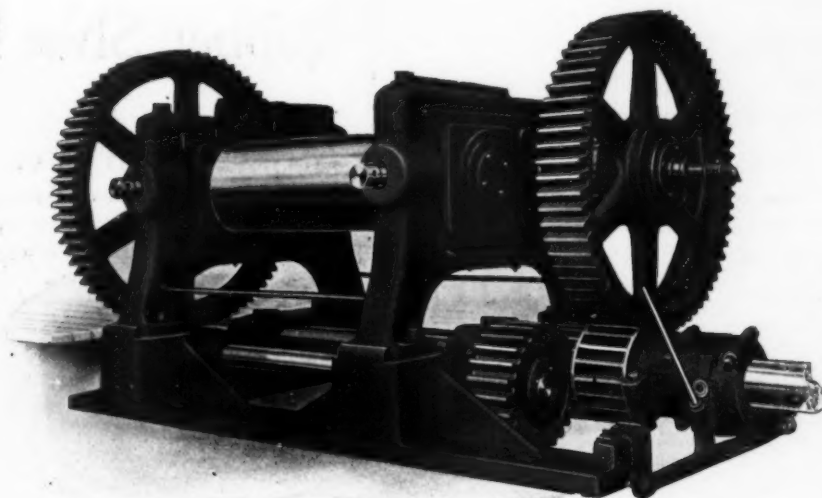
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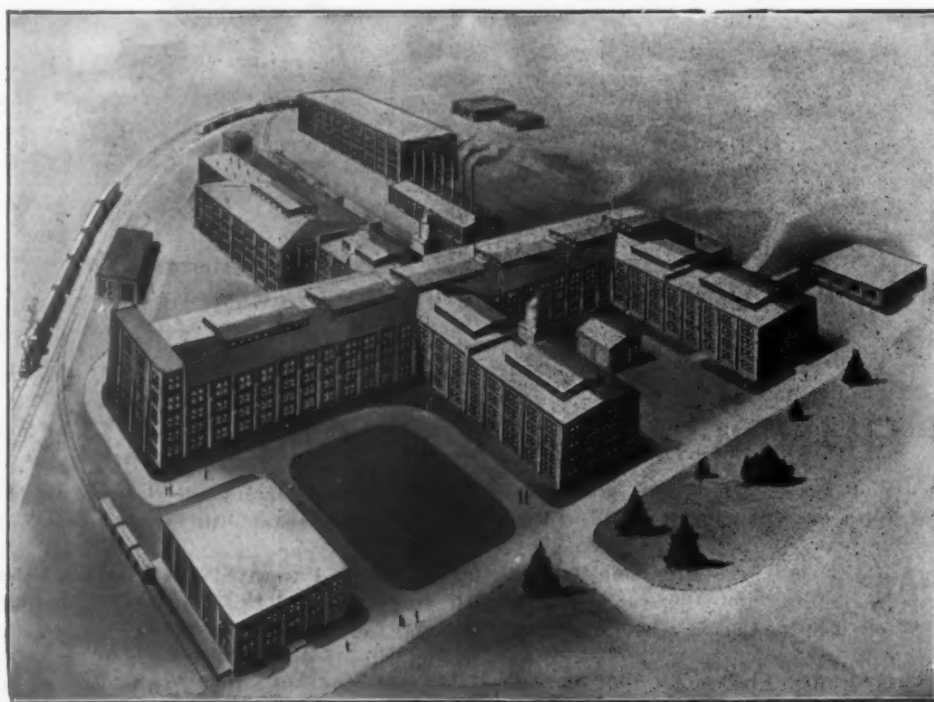
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Floor Area 67,564 Square Feet.
Production per day 3000 actual pairs.
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and
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Dixon's Graphite Gear Grease

Prevents NOISE
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SAVES MONEY
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FREE

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Hydraulic Steam Presses



All sizes and
styles.

Molds of every
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nothing too
small, nothing
too large or
complicated.
Castings for iron
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Let us figure
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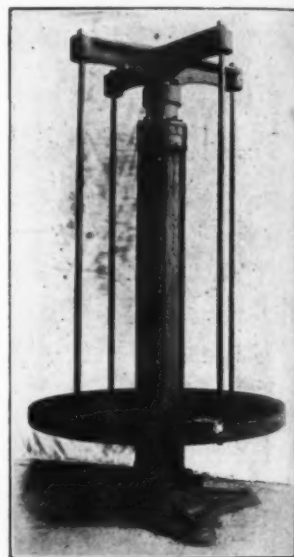
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AUTOMATIC JAR RING CUTTING LATHES
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Manufacturers of Washers, Crackers,
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Moulds and
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of all Kinds.

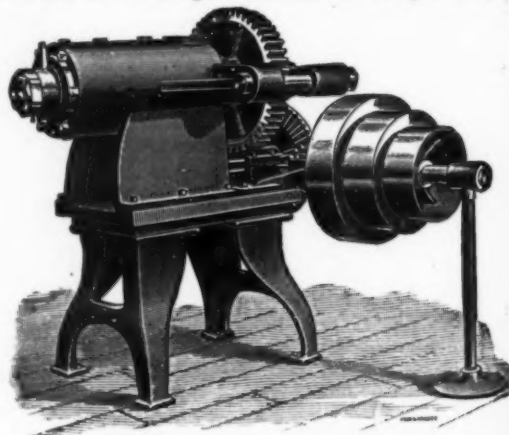
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CLARK'S Reliable Tubing Machine

FOR THE MANUFACTURE OF RUBBER TUBING AND CORD,
And also the Covering of Electrical and Telephone Cables.



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Made by T. J. BEAUDRY

ARE THE BEST AND MOST ACCURATE MADE IN THE WORLD.

SEND FOR PRICES BEFORE PLACING YOUR ORDERS ELSEWHERE

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Send in your Specifications for special Heaters.

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We make CUTTING DIES
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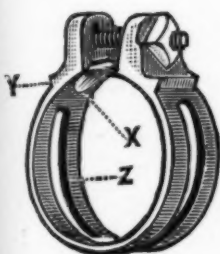
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Yerdon's Improved
Double Hose Band....

SIMPLE, STRONG, SURE.

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DIES AND MOULDS of every description
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Lowest prices consistent with good work.

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THE EUREKA STEAM TRAP.



In construction the most simple; in
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Used by the Navy, Steel Mills, Paper
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Indispensable for Presses and Vulcan-
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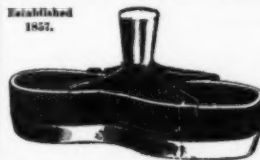
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Established
1852.



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Successor to A. M. HOWE

CUTTING DIES
of every description

FOR RUBBER

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Furnish Us Your Address

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AUTOMATIC AND ECONOMICAL
PRODUCES HIGHER GRADE MATERIAL
AT LOWER COST AND MORE EFFICIENT.

Installed in the
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"Three Generation" rubber cements.

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NO ADULTERANTS.

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Works: METUCHEN, N. J.

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Our brand "Viking" when cured with 6 per cent. of Sulphur will stretch from 2 inches to 9½ inches, and when tested according to the "Master Car Builder's" specifications 2 inches will stretch to 8 inches with a permanent elongation of ¼ inch.

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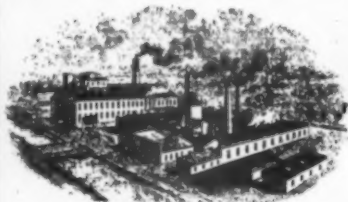
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MANUFACTURERS OF

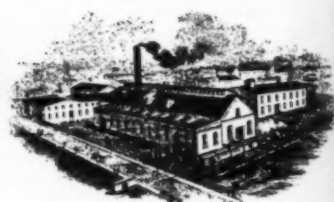
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Long Distance Telephone. No. 441.



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NEW JERSEY RUBBER COMPANY,

MANUFACTURERS OF ALL KINDS OF

RECLAIMED * RUBBER,

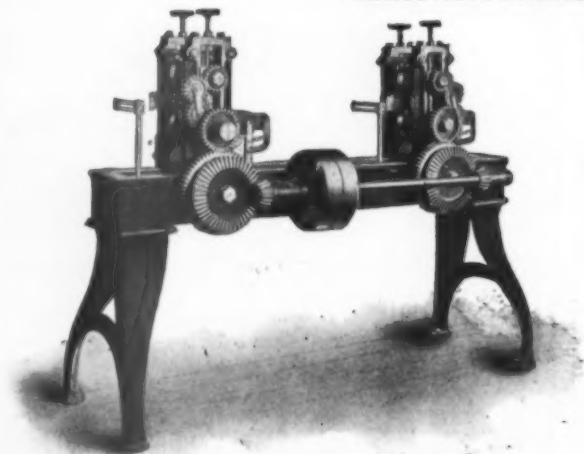
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TWO HEAD RUBBER COVERING MACHINE.

Rubber Strip Covering Machines
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Complete Line of Machinery for Insu-
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Manufacturers
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Footwear in
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The Inventors and original patentees of the first detachable pneumatic tyre for Motors. Cycles, etc.

THE "CLINCHER" (Bartlett's Patent)

Manufacturers of every description of Rubber Goods for Mechanical, Engineering and Scientific purposes.
Depots:



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In the form of Belting, Hose Valves, Steam Joints and Hydraulic Rings is specially stipulated for by the British and Continental Governments; Chief Corporations and Municipalities throughout Europe; also the Chief Engineers and Chemical Manufacturers throughout the world.

Stands rough wear and usage, heat, cold, damp, oils and acids, better than leather, rubber or gutta-percha.

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Manufacturers of

**Cold Rolled
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and

Detachable Rings

for all shapes of

**Solid and Pneumatic
Tires.**

Careful attention given to experimental work, for which we have special facilities.

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THE American Can Company is the largest producer in the United States of tin pails, tanks, boxes, dishes and other utensils, adapted to every business where a tin vessel is used.

We are therefore in a position to supply all your

**Rubber Cups Evaporating Dishes
Collecting Vessels Curing Vessels**

or any other tin specialty peculiar to the rubber business. When you buy—buy right—buy "Ameri-can" tinware.

RUBBER MILLS

We also make glue cans, cement cans, tanks, repair kit boxes to suit exacting trade requirements.

Write to us explaining your needs.

AMERICAN CAN COMPANY

Boston, Baltimore, Chicago, San Francisco

447 West 14th Street, New York

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J. H. LANE & CO.

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SAIL
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AND FABRICS IN REGULAR AND SPECIAL CONSTRUCTION.SEA ISLAND, EGYPTIAN, AND PEELER YARNS,
AND FABRICS IN REGULAR AND SPECIAL CONSTRUCTION.*Mention The India Rubber World when you write.***Vacuum Drying
Apparatus**

FOR

Sheet and Reclaimed Rubber

EMIL PASSBURG SYSTEM

The Passburg (Patent) "VACUUM DRYING
APPARATUS" is no experiment.They are installed in all of the principal rubber
manufactories of Europe.200 chambers in daily operation drying rubber
and rubber compounds.

Particulars upon application.

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SOLE MANUFACTURING RIGHTS FOR AMERICA

Handwork is costly
and inaccurate.Anything that the hands can do
can be done by Machinery.

No Problem is too Difficult for us.

Do you want a Machine for any
Purpose in Rubber Work?

Write to us and we will Produce it

WELLMAN SOLE CUTTING MACHINE CO.,
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Rubber and Compounding Materials

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Testing Plant operated at our Works.

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MACHINE WORKS.

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THE MASON**Reducing Valves**

ARE THE WORLD'S STANDARD VALVES.

For automatically reducing and absolutely
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to work perfectly in every instance.WRITE FOR FULL INFORMATION AND
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Mass., U.S.A.**

Publishers' Page



OFFICES:

No. 35 WEST 21st ST., NEW YORK

The Advertisements are of Interest.

THE publishers are in constant receipt of requests for specimen copies of THE INDIA RUBBER WORLD, from different parts of the United States and from other countries, from firms and individuals not known to be connected with the rubber trade. Frequently these requests are followed by orders for subscription to the paper. From time to time such requests are made in person, at our office, and it has been noticed that the inquirers, as often as not, turn first to the advertising pages, with a view to seeing who are prepared to sell or buy certain articles or goods. Presumably the advertising pages are of equal interest to those who send by mail for the paper. In these days, when rubber enters into such a great variety of uses, many of which are subsidiary to the chief features of numerous industries, there is a growing number of people who want to become better informed in regard to the rubber trade, and they begin by consulting the advertisements of the leaders in the trade.

An India-Rubber Library.

ULTIMATELY we hope to have, in THE INDIA RUBBER WORLD offices, the most comprehensive and complete collection of books, pamphlets, and papers relating to India rubber and Gutta percha that can be found in the world. Already a nucleus for such a collection exists which contains much matter of value, and it will afford us much pleasure to have our patrons make use of it. If any of them should be able to reciprocate by putting us in the way of making further additions to the collection, we should greatly appreciate it.

Wants it on His Desk all the Time.

A LETTER from a rubber factory superintendent, referring to "Crude Rubber and Compounding Ingredients," says: "It is a work that I want on my desk all the time, as it is surprising how often one wants to refer to it."

Send Us Your Catalogues.

THEY tell us what you are doing, and thereby enable us the more intelligently to conduct a paper which shall be of interest to the whole trade. They make the best reading for the trade journal editor, as they do for the man who is engaged in the business that you want to reach. We don't throw them away. There are important firms in the rubber trade that have not to-day a copy of their most elaborate catalogues. If THE INDIA RUBBER WORLD is put down on the distributing list for your trade publications, it may be that some day you will find our office the only place where a copy of the same can be referred to readily. And when you want to examine the catalogues of some other man or firm, we shall feel complimented if you will walk in to our office and say so.

Complete Your Files.

OUR supply of certain back numbers of THE INDIA RUBBER WORLD is now exhausted. We manage to obtain a few of such missing numbers from time to time, however, and can occasionally furnish them, but, of course, at an increased cost. It will not be

long before other issues will become scarce or unattainable, and those who have incomplete files will do well to order at once such missing numbers as are required to complete them.

From an Ohio Library.

THE INDIA RUBBER WORLD, 35 West 21st street, New York.
Dear Sir:—Very sorry you cannot send us the January number. We want it for binding and had hoped to keep the file complete. If you can suggest any place that we can get the missing number we would be greatly obliged.

August 17, 1906.

"Crude Rubber and Compounding Ingredients."

THIS book was designed originally as a work of reference for the use of factory superintendents, being the outgrowth of a collection of memoranda made by the author, made originally, for his own convenience. It occurred to him that the sort of information that one man interested in the rubber manufacture might find convenient to refer to in book form might prove equally desirable for other men in the industry; hence the publication of "Crude Rubber and Compounding Ingredients." The reception accorded to this book in rubber factories everywhere has been gratifying, but the demand has not been limited to rubber factories. Evidently there is a goodly number of persons who feel an interest in rubber and its manufacture, who have no real connection with the trade, and it is from such persons that must be attributed orders which come to us from booksellers and others in localities where there is no rubber industry. In several of the scientific bureaus of the United States government, in which more or less attention is devoted to India-rubber, "Crude Rubber and Compounding Ingredients" has come to be recognized as an authoritative book of reference. The same is true, to a lesser degree, of the many governmental offices abroad.

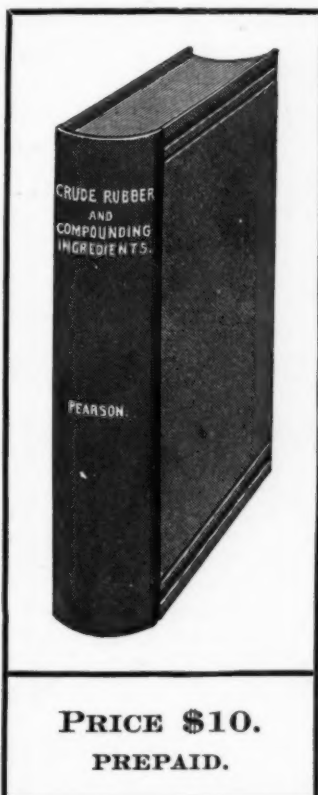
When To Send In Advertising "Copy."

OUR advertisers would confer a great favor upon the Publisher if, in sending in "copy" for changes, they would endeavor to do so as long as possible in advance of the date of publication—which is the last day of the month. We do

not desire to fix any arbitrary rule as to the latest date in the month on which advertising copy will be received, for reasons may develop, just before the printing of the paper, to make a change of advertisement desirable. At the same time, it will add to the convenience of the business office if those who intend sending in advertising "copy" will consider, not the latest date on which it can be handled, but the earliest date on which it can be furnished. Time should be allowed for sending proofs to the advertiser.

Bound Volumes.

A FEW bound volumes of THE INDIA RUBBER WORLD can still be supplied—pretty good looking volumes, we think, and we have heard some favorable things said about their contents. Order at once to insure securing copies.



PRICE \$10.
PREPAID.

FOR SALE.

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Practically a new plant manufacturing Drug-gists' Sundries, Power Plant, Machinery, etc., was new and run about one year.

Can be purchased at a low figure to continue the same business, or it can be utilized for any kind of rubber manufacturing. Apply to

SHERMAN F. FOOTE, Receiver.
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GUTTA TABAN

Trade Mark

A substitute for RUBBER.

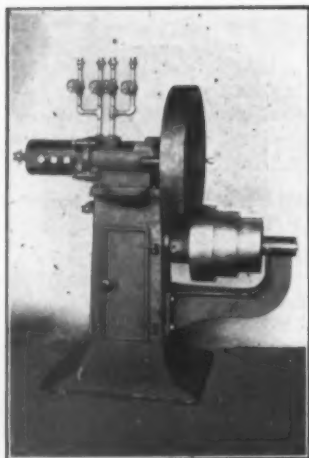
Something entirely new to the RUBBER trade, it will not get hard, remains elastic and flexible under all conditions, cures well and looks like RUBBER.

Made in three grades A. B. and C.
Write for prices.

Manufactured by
C. M. CUBBERLEY,
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Manufacturers of
TUBING MACHINES.
Machinery for
Insulating Electrical Wires.
Calendering Machines,
Braiding Machinery,
and

Special Machinery for Rubber and Allied Industries.

WRITE FOR ESTIMATE.

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Small Advertisement Department.

SITUATIONS OPEN.

TIRE-REPAIRMAN—Experienced, on Automobile Outer Casings and inner Tubes. Steady work. Wages \$15. Apply New York-Broadway Rubber Tire Co., 1186 Bedford Ave., Brooklyn, N. Y. [137]

WANTED.—Competent man to take charge of Belt Department for large Mechanical Rubber factory of national reputation in the middle west. Good salary to begin and excellent future prospects. Must state experience and come well recommended. Address **BELT**, care of **THE INDIA RUBBER WORLD**. [138]

WANTED—A man who understands operation of a three roll friction calender, and general mill work. Steady position to a strictly sober man who understands the work. Give reference, experience and salary expected. Address **CALENDER**, care of **THE INDIA RUBBER WORLD**. [147]

CHEMIST.—Wanted a Chemist experienced in making good rubber substitutes. Applicant should state where he has been employed and send samples of the substitutes he can make. He should also state what salary he wants. Address **SUN MAKER**, care of **THE INDIA RUBBER WORLD**. [150]

FOR SALE.

ONE CALENDER FOR SALE, three rolls 40", 18" diameter; in first-class order. Address **B. W. B.**, care of **THE INDIA RUBBER WORLD**. [144]

THE SQUEEZIT (A SMOKERS' ARTICLE)

A big money maker. Patent and plant for sale. Address by mail, **G. W. WILLIAMS**, No. 12 Chambers street, New York [142]

FOR SALE—ONE 26×60 **HARRIS CORLISS ENGINE** with new Knowles Pump and Condenser, one 24×46 **Wright Engine**, three smaller Engines, all guaranteed in best condition. Three **Burrstone Mills** and the complete Machinery of a Coldstorage and Ice Plant. One 18×48 **Combination Rubber Calender**, and one 14×38 **Stock and Friction Calender**. Several 14 and 15×36 **Mills**, one 15×36 **Cracker or Washer**, several smaller **Grinders**, one 26×72 **Birmingham Grinder**, one large 10 ft. **Buffalo Forge Fan**, one 6 ft. by 25 ft. **Devalcanizer**, complete with tracks, cars, turntables and piping. One 3 ft.×12 ft. **Devalcanizer**, two **Double Geared Refiners**, four 20×20 **Presses**, one two opening **Power Press**, two **Cutting Presses** a large lot of extra 15×36 and 14×40 **Mill Rolls**, about fifty tons of all sizes of **Shafting**, odd gears, bearings, etc. About ten tons of good **Piping and Valves**. All this machinery in the best of condition, practically as good as new. Two complete **Rubber Mills**, one in **Trenton, N. J.** and the other in **Boston, Mass.** Come see me **Philip McGroary**, **Trenton, N. J.** [148]

FOR SALE—A **LARGE RUBBER MILL** in the East near **Boston, Mass.** The owner wants to sell it as he is not in the **Rubber Manufacturing** business. The factory cost \$150,000. Will sell the same for \$35,000, of which \$20,000 can remain on first mortgage. This factory is equipped for the manufacture of **Clothing, Rubber Boots and Shoes, Tennis Shoes, Hose, Packing and Belting, and Hard Rubber Goods**, with the latest up-to-date machinery. The property consist of three acres of ground. Building, 60,000 sq. ft. of floor space. Within 20 minutes ride by trolley to **South Station, Boston, Mass.** Railroad Passenger Station, opposite office. Equipped with fire plugs, and sprinkling system all through factory and it is in the best of condition. Address "**RUBBER FACTORY**," care of **THE INDIA RUBBER WORLD**. [149]

BUSINESS PROPOSITION.

WANTED—By a large European importing house in crude rubber, American connections. Address **IMMEDIATE**, care of **THE INDIA RUBBER WORLD**. [136]

CALENDER WANTED.

WANTED.—One three roll 60" calender, 20" or 22" diameter; must be in first-class order. State very lowest price for spot cash. Address **ROLL**, care of **THE INDIA RUBBER WORLD**. [141]

WANT MACHINERY.

Second hand **Calender, Mill, Washer and Tube Machine**. Must be in good condition. State full particulars and price. Address **J. M.**, care of **THE INDIA RUBBER WORLD**. [146]

SITUATIONS WANTED.

SUPERINTENDENT.—Correspondence solicited by a Rubber Superintendent of twenty years' experience. Qualified for consultation on factory methods and expert chemical work. Available for position of Superintendent of a large Mechanical Goods factory. Address **L. K. J.**, care of **THE INDIA RUBBER WORLD**. [139]

SALESMAN.—Competent Salesman with fifteen years' successful experience finding a market for general line of goods for a large factory. Will furnish first-class references. Have traveled all states and will guarantee results to factory having an opening for a first-class Salesman. Address **L. J. W.**, care of **THE INDIA RUBBER WORLD**. [140]

FOREMAN.—Wanted position as Foreman in moulded goods, lathe solid tire or roll departments. Have had years of experience, and can furnish the very best of references. Address **F. H. B.**, care of **THE INDIA RUBBER WORLD**. [141]

MOULD MAKER.—A young man of thirty-three years, well versed in the making of moulds, both for hard and soft rubber, desires position. He has had ten years' experience in some of the largest rubber works in Germany and is especially competent in making and engraving comb moulds. Address **D. G.**, care of **THE INDIA RUBBER WORLD**. [145]

SALESMAN OR PUBLICITY MAN.—A clean cut absolutely reliable young man 33 years of age, with long and successful experience as Salesman and Advertising Man, practical knowledge of printing, desires to form connection with large rubber company, as salesman or general publicity man. (Opening must offer permanency and possibilities of a high order to the man who makes good. Address **JAMAICA**, care of **THE INDIA RUBBER WORLD**. [151]

SUPERINTENDENT OR FOREMAN.—Position wanted in a Mechanical Goods Factory or a Tire Repair Shop as Superintendent or Foreman by an experienced man. Address **C. B. A.**, care of **THE INDIA RUBBER WORLD**. [152]

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DRAUGHTSMEN.—Mechanical, Electrical, Structural, Architectural—who can do first work on the board are at a premium. In a recent issue of "**OPPORTUNITIES**," our monthly publication, we listed 104 positions for draughtsmen at salaries of \$900 to \$2500. There are at least three times that number listed to-day at our twelve offices. Sample copy of "**OPPORTUNITIES**" is free for the asking. It may pave the way for larger success. Write us to-day. **HAFGOODS**, 305 Broadway, New York. [174]

FOR SALE.—Factory **Rubber Waste** from **Rubber Cement**; cleaned at a low price; sample sent free. **UNITED STATES WASTE RUBBER CO.**, No. 487 North Warren Avenue, **Brockton, Mass.**

GRINDERS. Two 15×36 chilled roll **Birmingham Mills**; one 5'×11' **Vulcanizer or Devalcanizer**, hinged door and bolts tested 150. **W. C. COLEMAN CO**, **Rochelle Park, New Jersey**.

SITUATIONS OPEN.

WANTED.—One who thoroughly understands the manufacture of double texture garments, such as high grade **Mackintoshes, Hospital Sheeting, and Spreader work**. Address **H. V. B.**, care of **THE INDIA RUBBER WORLD**. [153]

WANTED.—Capable up to-date Superintendent on automobile tires and inner tubes. Address **H. G.**, care of **THE INDIA RUBBER WORLD**. [154]

WANTED.—Superintendent in mechanical lines, such as belting, packing, and hose. Address **G. W.**, care of **THE INDIA RUBBER WORLD**. [155]

WANTED.—First-class **Calender Man** on fine work and on druggists' sundry work. Address **F. C.**, care of **THE INDIA RUBBER WORLD**. [156]

CORRESPONDENT AND OFFICE MANAGER WANTED.—Man of good address and executive ability, experienced in selling goods and capable of taking charge of the sales of a **Rubber Factory**. State age, experience, and salary expected. Address **M. G. R.**, care of "**The India Rubber World**." [157]

SEAMLESS RUBBER GOODS. SPECIAL BRANDS ONLY

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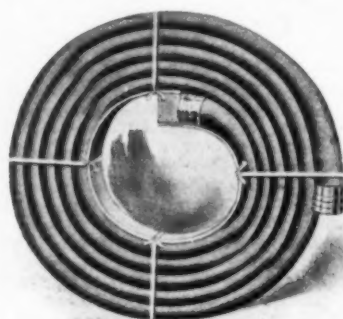
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This HOSE CORE obviates all possibility of damage to hose in shipment and prevents chafing by brass couplings. Made in all sizes and adapted to every class of hose.

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Same thickness, one-half the weight, one-half the cost of Rubber Tiling.

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Lake Shore Rubber Co., Erie, Pa.
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B. F. Goodrich Co., Akron, O.
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The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Republic Rubber Co., Youngstown, O.

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[See Mechanical Rubber Goods.]

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Revere Rubber Co., Boston, Mass.

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Cleveland Rubber Co., Cleveland, O.
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B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
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Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., Chicago.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
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Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.

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B. F. Goodrich Co., Akron, O.

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The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
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National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, Ohio.
Revere Rubber Co., Boston-New York.
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Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co., Canadian Rubber Co., Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Thread.

B. F. Goodrich Co., Akron, O.
Mechanical Fabric Co., Providence, R. I.
Revere Rubber Co., Boston.

Tiling.

Anchor Tile Co., Trenton, N. J.
Canadian Rubber Co., Montreal, Ltd.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
N. J. Car Spring & Rubber Co., Jersey City.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, Ohio.
Voorhees Rubber Mfg. Co., Jersey City.

Tubing.

[See Mechanical Rubber Goods.]

American Hard Rubber Co., New York.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Hardman Rubber Co., Belleville, N. J.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.

Valve Balls.

Boston Belting Co., Boston.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., Chicago.
National India Rubber Co., Bristol, R. I.

RUBBER BUYERS' DIRECTORY—CONTINUED.

Valve Balls.—Continued.

New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.

Valve Discs.

American Hard Rubber Co., New York.
Boston Belting Co., Boston-New York.
B. F. Goodrich Co., Akron, O.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.

Valves.

[See Mechanical Rubber Goods.]

The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.
Jenkins Bros., New York-Chicago.

Vulcanite Emery Wheels.

Manhattan Rubber Mfg. Co., Passaic,
N. J.
New York Belting & Packing Co. Ltd.,
New York.

Wringer Rolls.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Republic Rubber Co., Youngstown, O.

DRUGGISTS' AND
STATIONERS'
SUNDRIES

Atomizers.

Bandages.

Bulbs.

Syringes.

Water Bottles.

Druggists' Sundries—General.

American Hard Rubber Co., New York.
U. J. Bailey & Co., Boston.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Daval Rubber Co., Providence, R. I.
Est. of Jos. Bacharach, Brooklyn, N. Y.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Hodgman Rubber Co., New York-Boston.
Mittel Rubber Co., Akron, O.
National India Rubber Co., Bristol, R. I.
North British Rubber Co., Ltd., Edin-
burgh.
Pirelli & Co., Milan, Italy.
Seamless Rubber Co., New Haven, Ct.
Tyer Rubber Co., Andover, Mass.

Balloons.

King & Leatherow, Newark, N. J.

Balls, Dolls and Toys.

New York Rubber Co., New York.

Combs.

American Hard Rubber Co., New York

Elastic Bands.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, Ohio.
Davidson Rubber Co., Boston.
Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York-Boston.
Tyer Rubber Co., Andover, Mass.

Erasive Rubbers.

Davidson Rubber Co., Boston.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Mattson Rubber Co., New York.

Finger Cots.

Cleveland Rubber Co., Cleveland, Ohio.
Faultless Rubber Mfg. Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barborton, O.

Gloves.

Canadian Rubber Co. of Montreal.
Daval Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.

Gloves.—Continued.

King & Leatherow, Newark, N. J.
National India Rubber Co., Bristol, R. I.
Pure Gum Specialty Co., Barborton, O.

Hard Rubber Goods.

American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Stokes Rubber Co., Joseph, Trenton, N. J.
Tyer Rubber Co., Andover, Mass.

Hospital Sheatings.

Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.

Ice Bags and Ice Caps.

Est. of Jos. Bacharach, Brooklyn, N. Y.
Cleveland Rubber Co., Cleveland, Ohio.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
National India Rubber Co., Bristol, R. I.
Pure Gum Specialty Co., Barborton, O.
Tyer Rubber Co., Andover, Mass.

Life Preservers.

Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Nipples.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Daval Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barborton, O.
Tyer Rubber Co., Andover, Mass.

Seamless Rubber Goods.

H. A. Kayser, Cassel, Germany.

Shower Bath Sprinklers.

A. Schrader's Son, Inc., New York.

Sponges (Rubber).

Faultless Rubber Co., Ashland, Ohio.

Stationers' Sundries.

American Hard Rubber Co., New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cincinnati Rubber Mfg. Co., Cincinnati,
O.

Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Hodgman Rubber Co., New York-Boston.
Seamless Rubber Co., New Haven, Ct.
Tyer Rubber Co., Andover, Mass.

Stopples (Rubber).

Cleveland Rubber Co., Cleveland, O.
Daval Rubber Co., Providence, R. I.
Hodgman Rubber Co., New York.
Manhattan Rubber Mfg. Co., New York.
National India Rubber Co., Bristol, R. I.
New York Belting & Packing Co., N. Y.
A. Schrader's Son, Inc., New York.
Tyer Rubber Co., Andover, Mass.

Throat Bags.

Cleveland Rubber Co., Cleveland, O.
Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
National India Rubber Co., Bristol, R. I.
Tyer Rubber Co., Andover, Mass.

Tobacco Pouches.

Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barborton, O.
Tyer Rubber Co., Andover, Mass.

MACKINTOSHED
AND SURFACE
GOODS

Air Goods (Rubber).

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.

Air Goods (Rubber).—Continued.

New York Rubber Co., New York.
National India Rubber Co., Providence.
Tyer Rubber Co., Andover, Mass.

Air Mattresses.

Canadian Rubber Co. of Montreal.
Mechanical Fabric Co., Providence, R. I.
National India Rubber Co., Bristol, R. I.

Barbers' Bibs.

Cleveland Rubber Co., Cleveland, Ohio.
Daval Rubber Co., Providence, R. I.
Tyer Rubber Co., Andover, Mass.

Bathing Caps.

Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.

Bel lows Cloths.

Boston Rubber Co., Boston.
Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.

Calendering.

La Crosse (Wis.) Rubber Mills Co.
Plymouth Rubber Co., Stoughton, Mass.

Carriage Ducks and Drills.

Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Kureks Rubber Mfg. Co. of Trenton.
Gutta Percha & Rubber Mfg. Co., To-
ronto.
National India Rubber Co., Bristol, R. I.

Clothing.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Granby Rubber Co., Granby, Quebec.
Gutta Percha & Rubber Mfg. Co. of To-
ronto.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.
National India Rubber Co., Bristol, R. I.
North British Rubber Co., Ltd., Edin-
burgh.
Pirelli & Co., Milan, Italy.

Cravenettes.

Cravenette Co., Ltd.

Diving Apparatus.

A. Schrader's Son, Inc., New York.

Diving Dresses.

Hodgman Rubber Co., New York.

Dress Shields.

Mattson Rubber Co., New York.

Horse Covers.

Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Leggings.

Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Mackintoshes.

[See Clothing.]

Proofing.

Canadian Rubber Co. of Montreal.
La Crosse (Wis.) Rubber Mills Co.
Plymouth Rubber Co., Stoughton, Mass.

Rain Coats.

Cravenette Co., Ltd.

Rubber Coated Cloths.

Mechanical Fabric Co., Providence, R. I.

RUBBER
FOOTWEAR

Boots and Shoes.

American Rubber Co., Boston.
Boston Rubber Shoe Co., Boston.
Canadian Rubber Co. of Montreal.
L. Candee & Co., New Haven, Ct.
B. F. Goodrich Co., Akron, O.
Granby Rubber Co., Granby, Quebec.
Gutta Percha & Rubber Mfg. Co. of
Toronto.
Hood Rubber Co., Boston.
Looming Rubber Co., Williamsport, Pa.
Meyer Rubber Co., New York.
National India Rubber Co., Boston.
North British Rubber Co., Ltd., Edin-
burgh.
United States Rubber Co., New York.
Wales-Goodyear Rubber Co., Boston.
Woonsocket Rubber Co., Providence.

Heels and Soles.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Continental Casutehouse & Gutta-percha
Co., Hanover.
Grieb Rubber Co., Trenton, N. J.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.
Plymouth Rubber Co., Stoughton, Mass.

Tennis Shoes.

American Rubber Co., Boston.
Boston Rubber Shoe Co., Boston.
Granby Rubber Co., Granby, Quebec.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.
La Crosse Rubber Mills Co., La Crosse,
Wis.

National India Rubber Co., Providence

Wading Pants.

Canadian Rubber Co. of Montreal.
Hodgman Rubber Co., New York.

DENTAL AND
STAMP RUBBER

Dental Gum.

American Hard Rubber Co., New York.
Cleveland Rubber Co., Cleveland, O.
Tyer Rubber Co., Andover, Mass.

Rubber Dam.

Cleveland Rubber Co., Cleveland, O.
Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Stamp Gum.

B. F. Goodrich Co., Akron, O.
Mattson Rubber Co., New York.
Mechanical Rubber Co., Chicago, Ill.
N. J. Car Spring & Rubber Co., Jersey
City, N. J.
New York Belting & Packing Co., N. Y.

ELECTRICAL

Electrical Supplies.

American Hard Rubber Co., New York.
Lake Shore Rubber Co., E. O. Pa.
Joseph Stokes Rubber Co., Trenton, N. J.
Massachusetts Chemical Co., Boston.
Tyer Rubber Co., Andover, Mass.

Friction Tape.

Boston Belting Co., Boston.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Rubber Co., Akron, O.
Home Rubber Co., Trenton, N. J.
Massachusetts Chemical Co., Boston.
Mechanical Rubber Co., Chicago.
National India Rubber Co., Bristol, R. I.
Revere Rubber Co., Boston-New York.

Hard Rubber Goods.

American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
Joseph Stokes Rubber Co., Trenton, N. J.

Insulating Compounds.

Canadian Rubber Co. of Montreal.
Gutta-Percha & Rubber Mfg. Co., To-
ronto.
Massachusetts Chemical Co., Boston.

Insulated Wire and Cables.

National India Rubber Co., Providence

Splicing Compound.

Home Rubber Co., Trenton, N. J.

SPORTING
GOODS

Foot Balls.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Golf Balls.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Davidson Rubber Co., Boston.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co.,
of Toronto, Ltd.

RUBBER BUYERS' DIRECTORY—CONTINUED.

<p>Sporting Goods. Canadian Rubber Co. of Montreal. Faultless Rubber Co., Akron, Ohio. B. F. Goodrich Co., Akron, O. Hodgman Rubber Co., New York. Tyler Rubber Co., Andover, Mass.</p> <p>Striking Bags. Canadian Rubber Co. of Montreal. Cleveland Rubber Co., Cleveland, Ohio. Faultless Rubber Co., Akron, Ohio. B. F. Goodrich Co., Akron, O. Pure Gum Specialty Co., Barborton, O.</p> <p>Submarine Outfits. Hodgman Rubber Co., New York.</p>	<p>MISCELLANEOUS</p> <p>Boiler Specialist. H. W. Jones, New York.</p> <p>Carriage Washer. Ideal Carriage Washer Co.</p> <p>Cement (Rubber). Boston Belting Co., Boston. Canadian Rubber Co. of Montreal. B. F. Goodrich Co., Akron, O. Hartley Cement Co., Lynn, Mass.</p>	<p>Cement (Rubber).—Continued. Manhattan Rubber Mfg. Co., New York N. J. Car Spring & Rubber Co., Jersey City, N. J. New York Belting & Packing Co., N. Y.</p> <p>Chemical Analyses. Durand Woodman, Ph. D., New York. H. L. Terry, Manchester, England.</p> <p>Chemists. Stephen P. Sharples, Boston, Mass. Durand Woodman, Ph. D., New York.</p>	<p>Engraver. F. C. Smith, Boston, Mass.</p> <p>Rubber Journals. Gummi-Zeitung, Dresden, Germany.</p> <p>Rubber Planting. Ohio Rubber Culture Co., Canton, Ohio.</p> <p>Rubber Tree Seeds. J. P. William & Bros., Heneratgoda, Ceylon.</p>
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MACHINERY AND SUPPLIES FOR RUBBER MILLS.

<p>RUBBER MACHINERY</p> <p>Acid Tanks. Birmingham Iron Foundry, Derby, Ct.</p> <p>Band Cutting Machine. A. Adamson, Akron, O. Alton Machine Co., New York. Birmingham Iron Foundry, Derby, Ct.</p> <p>Belt Folding Machines. Birmingham Iron Foundry, Derby, Ct. Farrel Foundry & Mach. Co., Ansonia, Ct.</p> <p>Belt Slitters. Cloth Dryers. Gearing. Shafting. Wrapping Machines. Alton Machine Co., New York. Birmingham Iron Foundry, Derby, Ct. Farrel Foundry & Mach. Co., Ansonia, Ct.</p> <p>Belt Stretchers. Alton Machine Co., New York. Birmingham Iron Foundry, Derby, Ct. Farrel Foundry & Mach. Co., Ansonia, Ct. Hoggson & Pettis Mfg. Co., New Haven.</p> <p>Boilers. William R. Thropp, Trenton, N. J. John K. Thropp & Sons Co., Trenton, N. J.</p> <p>Braiders. New England Butt Co., Providence, R. I.</p> <p>Buckles. The Weld Mfg. Co., Boston.</p> <p>Cabling Machinery. Alton Machine Co., New York.</p> <p>Calenders. Alton Machine Co., New York. Birmingham Iron Foundry, Derby, Ct. Farrel Foundry & Mach. Co., Ansonia, Ct. Textile-Finishing Machinery Co., Providence, R. I.</p> <p>Castings. A. Adamson, Akron, O. Birmingham Iron Foundry, Derby, Ct. Farrel Foundry & Mach. Co., Ansonia, Ct.</p> <p>Chucks (Lathe). Hoggson & Pettis Mfg. Co., New Haven.</p> <p>Churns. American Tool & Machine Co., Boston</p> <p>Clutches. Farrel Foundry & Mach. Co., Ansonia, Ct.</p> <p>Crackers. Alton Machine Co., New York. Birmingham Iron Foundry, Derby, Ct.</p> <p>Devulcanizers. Alton Machine Co., New York. Biggs Boiler Works Co., Akron, Ohio. Birmingham Iron Foundry, Derby, Ct. Edred W. Clark, Hartford, Ct. William R. Thropp, Trenton, N. J.</p> <p>Dies. John J. Adams, Worcester, Mass. Barbour Bros., Trenton, N. J. T. J. Beaudry, Marlboro, Mass. Brookton Die Co., Brockton, Mass. J. W. Deewes, Philadelphia, Pa.</p>	<p>Dies.—Continued. Hoggson & Pettis Mfg. Co., New Haven. Independent Die Co., Brockton, Mass. Joseph E. Knox & Co., Lynn, Mass.</p> <p>Doubling Machines. American Tool & Machine Co., Boston.</p> <p>Drying Apparatus. American Process Co., New York.</p> <p>Drying Machines. Alton Machine Co., New York. Joseph P. Devine, Buffalo, N. Y. Birmingham Iron Foundry, Derby, Ct. Textile-Finishing Machinery Co., Providence, R. I.</p> <p>Embossing Calenders. Textile-Finishing Machinery Co., Providence, R. I.</p> <p>Engines, Steam. Alton Machine Co., New York. William R. Thropp, Trenton, N. J. John K. Thropp & Sons Co., Trenton, N. J.</p> <p>Engraving Roll. Hoggson & Pettis Mfg. Co., New Haven.</p> <p>Grinders and Mixers. Alton Machine Co., New York. Birmingham Iron Foundry, Derby, Ct. Farrel Foundry & Mach. Co., Ansonia, Ct. William R. Thropp, Trenton, N. J.</p> <p>Hangers. Farrel Foundry & Mach. Co., Ansonia, Ct.</p> <p>Hose Machines. A. Adamson, Akron, Ohio. Alton Machine Co., New York. Birmingham Iron Foundry, Derby, Ct. New England Butt Co., Providence, R. I.</p> <p>Hydraulic Accumulators. Birmingham Iron Foundry, Derby, Ct. Farrel Foundry & Mach. Co., Ansonia, Ct.</p> <p>Hydraulic Machinery. Insulating Machinery. Iron Castings. Alton Machine Co., New York.</p> <p>Lasts (Rubber Shoe). Middlesex Last Co., Boston.</p> <p>Lathes—Hard Rubber. A. Adamson, Akron, Ohio.</p> <p>Lathes—Jar Ring. A. Adamson, Akron, Ohio. Alton Machine Co., New York. Birmingham Iron Foundry, Derby, Ct. William R. Thropp, Trenton, N. J.</p> <p>Machinists' Tools. Hoggson & Pettis Mfg. Co., New Haven.</p> <p>Moulds. A. Adamson, Akron, Ohio. Alton Machine Co., New York. W. K. Arnold, Malden, Mass. Barbour Bros., Trenton, N. J. Birmingham Iron Foundry, Derby, Ct. J. W. Dewers, Philadelphia, Pa. Hoggson & Pettis Mfg. Co., New Haven</p> <p>Pillow Blocks. Farrel Foundry & Mach. Co., Ansonia, Ct.</p>	<p>Presses (for Rubber Work.) A. Adamson, Akron, O. Alton Machine Co., New York. Day State Machine Co., Erie, Pa. Birmingham Iron Foundry, Derby, Ct. Boomer & Boschert Press Co., Syracuse, N. Y. Edred W. Clark, Hartford, Ct. Farrel Foundry & Mach. Co., Ansonia, Ct. William R. Thropp, Trenton, N. J.</p> <p>Pumps. Alton Machine Co., New York. Birmingham Iron Foundry, Derby, Ct. Boomer & Boschert Press Co., Syracuse, N. Y. Farrel Foundry & Mach. Co., Ansonia, Ct.</p> <p>Racks for Boot and Shoe Cars. Hoggson & Pettis Mfg. Co., New Haven.</p> <p>Reducing Valves. Mason Regulator Co., Boston.</p> <p>Rollers (Hand). Hoggson & Pettis Mfg. Co., New Haven.</p> <p>Rubber Covering Machines. Alton Machine Co., New York. New England Butt Co., Providence, R. I.</p> <p>Rubber Growers' Utensils. CEMENT CANS AND TANKS. American Can Co., New York.</p> <p>REPAIRING KIT BOXES. American Can Co., New York.</p> <p>Separators. Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.</p> <p>Separators for Reclaimed Rubber. American Process Co., New York.</p> <p>Special Rubber Machinery. Alton Machine Co., New York. Wellman Sole Cutting Machine Co., Medford, Mass.</p> <p>Spreaders. Alton Machine Co., New York. American Tool & Machine Co., Boston Birmingham Iron Foundry, Derby, Ct. New England Butt Co., Providence, R. I.</p> <p>Steam Traps and Specialties Jenkins Bros., New York. Mason Regulator Co., Boston. Osgood Sayen, Philadelphia, Pa.</p> <p>Steel Stamps. Hoggson & Pettis Mfg. Co., New Haven.</p> <p>Stitchers (Hand). Hoggson & Pettis Mfg. Co., New Haven.</p> <p>Strip Covering Machines. Strip Cutters. Alton Machine Co., New York. New England Butt Co., Providence, R. I.</p> <p>Tire Molds. Day State Machine Co., Erie, Pa.</p> <p>Tubing Machines. A. Adamson, Akron, O. Alton Machine Co., New York. Ray State Machine Co., Erie, Pa. Edred W. Clark, Hartford, Ct. John Royle & Sons, Paterson, N. J.</p> <p>Vacuum Drying Chambers Alton Machine Co., New York. Joseph P. Devine Co., Buffalo, N. Y.</p> <p>Varnishing Machines. Birmingham Iron Foundry, Derby, Ct.</p>	<p>Vulcanizers. Alton Machine Co., New York. Biggs Boiler Works Co., Akron, Ohio. Birmingham Iron Foundry, Derby, Ct. Farrel Foundry & Mach. Co., Ansonia, Ct. William R. Thropp, Trenton, N. J. John K. Thropp & Sons Co., Trenton, N. J.</p> <p>Washers. Alton Machine Co., New York. Birmingham Iron Foundry, Derby, Ct. Farrel Foundry & Mach. Co., Ansonia, Ct. William R. Thropp, Trenton, N. J. Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.</p> <p>Wire Insulating Machines. Alton Machine Co., New York.</p> <p>Wire Rope Machinery. Alton Machine Co., New York.</p> <p>SECOND-HAND MACHINERY. Philip Broomfield, Boston, Mass. W. C. Coleman Co., Rochelle Park, N. J. Philip McGroarty, Trenton, N. J. M. Norton & Co., Charlestown, Mass.</p> <p>FACTORY SUPPLIES</p> <p>Acid (Carbolic). Barrett Mfg. Co., Philadelphia.</p> <p>Antimony, Sulphurets of. GOLDEN. Actien-Ges. Georg Egestorff's Salzwerke, Linden, Germany. Atlas Chemical Co., Newtonville, Mass. GOLDEN AND CRIMSON. Joseph Cantor, New York. Geo. F. Lufbery, Jr., Elizabeth, N. J. Wm. H. Scheel, New York. Stamford (Conn.) Rubber Supply Co. Typeke & King, London, England.</p> <p>Balata. George A. Alden & Co., Boston.</p> <p>Benzol. Barrett Mfg. Co., Philadelphia. Samuel Cabot, Boston.</p> <p>Black Hypo. Joseph Cantor, New York. William H. Scheel, New York. Typeke & King, London, England.</p> <p>Boxes (Wood). Henry H. Sheip & Co., Philadelphia.</p> <p>Brass Fittings. A. Schrader's Son, Inc., New York.</p> <p>Carbon Bisulphide. George W. Speaight, New York.</p> <p>Caustic Soda. Acker Process Co., Niagara Falls, N. Y.</p> <p>Chemicals. Acker Process Co., Niagara Falls, N. Y. George W. Speaight, New York. S. F. Wetherill Co., Philadelphia, Pa.</p> <p>Colors. Joseph Cantor, New York. William H. Scheel, New York. Typeke & King, London, England. S. F. Wetherill Co., Philadelphia, Pa.</p>
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MACHINERY AND SUPPLIES FOR RUBBER MILLS—CONTINUED.

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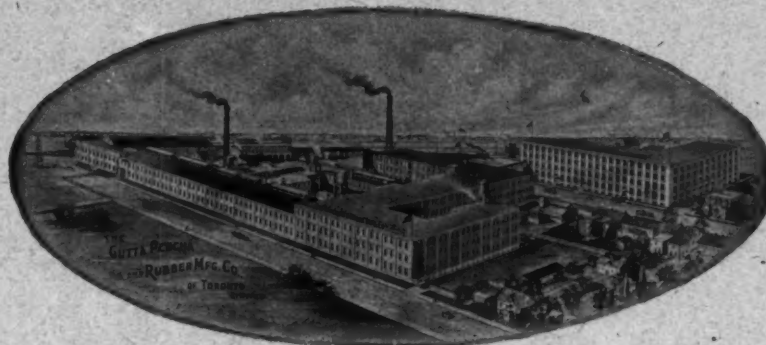
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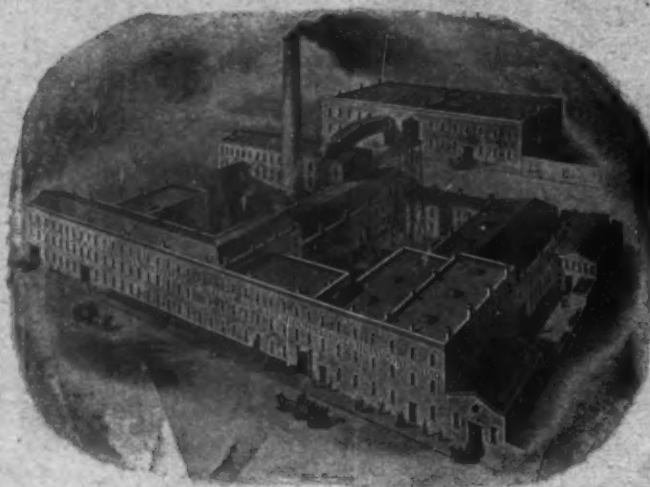
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